A Study of Capital Structure and Dividend Policy Determinants in Multinational and Domestic Corporations – A Cross-Country Comparison

By

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Declaration of Originality

I hereby declare that this thesis is entirely the work of the author and has not been submitted to any other institution or university. Furthermore, all sources used in the production of this thesis have been acknowledged in the usual manner.

Shumi Akhtar

7th August 2007

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ABSTRACT

This thesis uses a unique data set to assess whether the dynamics of financial structure can be captured through the specification and estimation of capital structure and dividend payout models for domestic corporations (DCs) and multinational corporations (MCs) across countries with different characteristics. Therefore, this study attempts to provide a comparative and comprehensive understanding of the capital structure and dividend policy determinants at both the micro (single country) and macro (multiple country) levels for 6038 DCs and 5918 MCs across Australia, the United States (U.S.), the United Kingdom (U.K.), Japan and Malaysia over the 1995 to 2004 period. These countries are characterised by different financial, taxation and legal systems which may have an impact on capital structure and dividend payment determinants. Both cross-sectional and time-variation in capital structure and dividend policy are explored. This thesis includes four empirical essays. Essay I is focused on capital structure determinants for DCs and MCs in Australia. Essay II expands this to a multi-country comparison of capital structure determinants for DCs and MCs. Essay III is centered on dividend policy determinants for DCs and MCs in Australia while Essay IV expands this analysis to a comparison of dividend policy determinants for DCs and MCs in multiple countries. Lintner's (1956) speed of adjustment costs for capital structure and dividend payout ratios over time is also tested for DCs and MCs across countries. Finally, results of sensitivity of different definitions of dependent variables and interdependent (endogeneous) relationship between long-term debt and dividend policy is presented.

The results in Chapter 3 (Essay I) evidenced that multinationality of a firm is important in explaining long-term debt ratios for Australian firms. The determinants for short-term debt and long-term debt ratios vary for Australian DCs and MCs and the difference between DCs and MCs capital structure is explained by geographical diversification, firm's age, bankruptcy risks and growth. The impact of increasing Australian firms' global association through foreign sales (depth) and number of subsidiaries (breadth) show no significant optimal relationship with debt ratios. In addition to industry and time effects, other important capital structure factors (e.g.

industry median credit risk, financial risk and economic risk) are also tested and it is found that the inclusion of these variables improves the strength of the proposed model. Strong evidence of time variation in capital structure for both Australian DCs and MCs is confirmed through significant positive partial speed of adjustment costs.

In determining capital structure determinants across Australia, U.S., Japan, U.K. and Malaysia, the results show that the majority of the explanatory factors vary between DCs and MCs and also across countries (Chapter 4: Essay II). Debt holding capacity of firms varies significantly between DCs and MCs and across countries. In the U.S., MCs hold significantly less debt (both short-term and long-term debt) than DCs, but the opposite is found for Malaysia. After controlling for country effects, it is found that firms in Australia, Japan, U.K. and Malaysia hold significantly less long-term debt relative to U.S. firms. Also, DCs and MCs that operate under an imputation tax system (Australia and U.K.), hold significantly less short-term and long-term debt as opposed to classical tax system countries (U.S., Japan and Malaysia). Further, DCs and MCs operating under common law system (Australia, U.S., U.K. and Malaysia) have significantly less short-term debt and significantly higher long-term debt than the firms in civil law practice (Japan). When industry and time effects are considered, the results indicate that they are not consistent across DCs and MCs and they vary across countries. Testing the speed of adjustment costs indicates that Australian and Japanese MCs adjust their long-term debt ratios towards their target level faster than their counterparts DCs while firms U.K. and Malaysia exhibit the opposite. Similarly, Australian, U.S. and U.K. MCs adjust their short-term debt ratios towards their target level relatively quicker than their DCs counterparts.

Chapter 5 (Essay III) investigates the determinants of dividend policy for Australian DCs and MCs. In considering dividend payout ratios we adopt two definitions – cash dividends and total dividends. The cash dividend payout ratios consists of cash dividends to net earnings while total dividend payout ratios consists of both cash dividends and share repurchases to net earnings. The determinants of foreign exchange, tax clientele and financial slack are significant in explaining the difference of total dividend payout ratios between Australian DCs and MCs.

Diversification, profitability, firm-specific risk, size, collateral value of assets and financial slack are the significant variables in explaining the difference in cash dividend payout ratios between Australian DCs and MCs. These results remain unaffected irrespective of controlling for industry and time effects.

Lastly, we examine the determinants of dividend payout ratios across the five sampled countries (Chapter 6: Essay IV). The results reveal that stock return, cash flow variation, profitability and age are significant factors in explaining cash dividend payout ratios for DCs across countries. Tax clientele, cash flow variation and profitability are the significant factors in explaining cash dividend payout ratios for MCs across countries. However, the significant determining factors for total dividend payment ratios are slightly different for both DCs and MCs across countries. The factors that significantly explain the difference of DCs and MCs cash dividend and total dividend payout ratios vary across countries. Importantly, country effects shows that firms operating in an imputation tax system and in a common law environment pay comparatively higher dividends (both cash dividends and total dividends) relative to firms operating in a classical tax system and civil law regime. Further, MCs operating in the imputation tax system and common law regime pay significantly lower dividends (both cash dividends and total dividends) relative to DCs counterparts. The speed of adjustment towards the target level of cash dividend payout ratios suggests that MCs in Australia, U.S. and Malaysia adjust their target dividend payout ratios faster than DCs, while the opposite holds for Japanese and U.K. MCs. Finally, the sensitivity analysis of endogeneity and alternative measurement of proxies suggests that the initial findings are robust and reliable.

TABLE OF CONTENTS

- 1 - INTRODUCTION 1
1.1 INTRODUCTION 1
1.2 DEFINITION OF MULTINATIONAL AND DOMESTIC CORPORATIONS 3
1.3 BRIEF OVERVIEW OF CAPITAL STRUCTURE AND DIVIDEND PAYOUT 4
1.3.1 Theories of Capital Structure 4
1.3.2 Theories of Dividend Payout 5
1.3.3 Speed of Adjustment Costs for Capital Structure and Dividend Payout Ratios 7
1.3.4 Endogeneous Relationship between Capital Structure and Dividend Payout Ratios 8
1.4 SCOPE AND OBJECTIVES OF THE STUDY 9
1.5 SIGNIFICANCE AND CONTRIBUTION OF THE STUDY 12
1.6 DATA AND METHODOLOGY 12
1.7 SUMMARY OF THE THESIS 13
1.7.1 Key Findings of Essay I 13
1.7.2 Key Findings of Essay II 14
1.7.3 Key Findings of Essay III 15
1.7.4 Key Findings of Essay IV 15
1.8 OUTLINE 17
- 2 - DATA 18
2.1 INTRODUCTION 18
2.2 DATA SOURCES AND OVERVIEW 18
2.3 SAMPLE SELECTION AND DATA FILTERING 19
2.3.1 Sample Selection 19
2.3.2 Selection of Time Period 20
2.3.3 Selection of Countries 20
2.4 MEASUREMENT OF FIRM-SPECIFIC VARIABLES 26
2.4.1 Long-term Debt 26
2.4.2 Dividend Payout 27
2.4.3 Agency Cost 28
2.4.4 Free Cash Flow 28
2.4.5 Growth 29
2.4.6 Non-debt Tax Shields 29
2.4.7 Profitability 30
2.4.8 Size 30
2.4.9 Collateral Value of Assets 30
2.4.10 Business Risk 31
2.4.11 Stock Return 31
2.4.12 Bankruptcy Costs or Cash Flow Variability 31
2.4.13 Age 32
2.4.14 Average Tax Rate 32
2.4.15 Financial Slack 33
2.4.16 Tax Clientele 33
2.5 MEASUREMENT OF INTERNATIONAL ENVIRONMENTAL VARIABLES 33
2.5.1 Diversification 33
2.5.2 Foreign Exchange Risk 34
2.5.3 Political Risk 34
2.6 MEASUREMENT OF MACRO VARIABLES 36
2.6.1 Country 36
2.6.2 Industry 36
2.6.3 Taxation System 36
2.6.4 Legal System 36
2.6.5 Time 37
2.7 SAMPLE CHARACTERISTICS 37
2.8 ROBUSTNESS OF DATA 44
2.8.1 Detection of Multicolinearity 44
2.8.2 Detection of Outliers 44
2.9 SUMMARY AND CONCLUSION 44
- 3- THE DYNAMICS OF AUSTRALIAN MCs & DCs CAPITAL STRUCTURE 45
3.1 INTRODUCTION 45
3.2 AUSTRALIAN CAPITAL MARKET IN BRIEF 48
3.3 THEORY OF MULTINATIONAL CAPITAL STRUCTURE 49

3.3.1 The Impact of Differential Risk Levels on Capital Structure ... 50
3.3.2 The Impact of Differential Taxes on Capital Structure ... 52
3.3.3 The Impact of Differential Agency Costs on Capital Structure ... 54
3.4 CAPITAL STRUCTURE AND ITS DETERMINANTS ... 56
3.4.1 Leverage ... 56
3.4.1.1 Leverage Definition ... 56
3.4.1.2 Long-term versus Short-term Leverage ... 57
3.4.1.3 Leverage Change and Speed of Adjustment Costs ... 58
3.4.2 Additional Foreign Capital Structure Determinants ... 59
3.4.2.1 Multinationality ... 60
3.4.2.2 Diversification ... 60
3.4.2.3 Foreign Exchange Risk ... 62
3.4.2.4 Political Risk ... 64
3.4.2.5 Credit Risk, Economic Risk and Financial Risk ... 65
3.4.3 Trade-off Capital Structure Theory ... 66
3.4.3.1 Static Trade-off Theory ... 66
3.4.3.1.1 Bankruptcy Costs ... 66
3.4.3.1.2 Non-debt Tax Shield ... 67
3.4.3.1.3 Systematic Risk ... 68
3.4.3.1.4 Tax Rate ... 68
3.4.3.2 Dynamic Trade-off Theory ... 69
3.4.3.2.1 Size ... 69
3.4.3.2.2 Collateral Value of Assets ... 70
3.4.3.2.3 Firm's Age ... 71
3.4.4 Pecking Order Capital Structure Theory ... 71
3.4.4.1 Adverse Selection ... 71
3.4.4.1.1 Profitability ... 71
3.4.4.1.2 Dividends ... 72
3.4.4.2 Agency Theory ... 73
3.4.4.2.1 Free Cash Flow ... 74
3.4.4.2.2 Growth ... 76
3.4.5 Other Issues ... 77
3.4.5.1 Industry Effect ... 77
3.4.5.2 Industry Median ... 78
3.4.5.3 Time Factor ... 79
3.5 DATA AND METHODOLOGY ... 79
3.6 RESULTS AND DISCUSSION ... 82
3.7 SUMMARY AND CONCLUSION ... 102
- 4 - CAPITAL STRUCTURE OF MCs AND DCs – AN INTERNATIONAL COMPARISON ... 108
4.1 INTRODUCTION ... 108
4.2 A BRIEF OVERVIEW OF MCs' AND DCs' FINANCIAL STRUCTURE ACROSS COUNTRIES ... 110
4.3 MULINATIONALITY AND MODIGLIANI & MILLER CAPITAL STRUCTURE THEORY ... 113
4.4 INTERNATIONAL CROSS-COUNTRY CAPITAL STRUCTURE THEORY ... 117
4.4.1 Legal Regime ... 119
4.4.2 Tax Regime ... 120
4.4.3 Other Issues ... 121
4.5 DATA AND METHODOLOGY ... 122
4.5.1 Model I ... 122
4.5.2 Model II ... 123
4.5.3 Model III ... 124
4.5.4 Model IV ... 124
4.5.5 Model V ... 125
4.6 RESULTS ... 126
4.6.1 General Overview of MCs' and DCs' Difference in Capital Structure ... 126
4.6.2 Analytical Discussion of DCs' and MCs' Difference in Capital Structure ... 131
4.6.3 Regression Analysis and Corresponding Hypothesis ... 134
4.6.3.1 DCs' and MCs' Capital Structure Determinants ... 134
4.6.3.2 Multinationality Hypothesis ... 143
4.6.3.3 Country Hypothesis ... 151
4.6.3.4 Industry Hypothesis ... 161
4.6.3.5 Time Hypothesis ... 164
4.6.3.6 Speed of Adjustments ... 167
4.7 SUMMARY AND CONCLUSION ... 169

- 5 - DIVIDEND POLICY OF AUSTRALIAN MCs AND DCs......175
5.1 INTRODUCTION......175
5.2 IMPORTANCE OF MULTINATIONALITY AND DIVIDEND PAYOUTS......178
5.2.1 Uniqueness of Operational Activities......178
5.2.2 Different Tax Regime......179
5.2.3 Easier Capital Market Access......181
5.3 THE DETERMINANTS OF DIVIDEND POLICY......181
5.3.1 Multinationality......181
5.3.2 Diversification......182
5.3.3 Foreign Exchange Risk......182
5.3.4 Political Risk......183
5.3.5 Agency Costs......183
5.3.6 Free Cash Flows......185
5.3.7 Past and Future Growth......185
5.3.8 Stock Return......187
5.3.9 Average Tax Rate......187
5.3.10 Tax Clientele......188
5.3.11 Volatility of Cash Flows......189
5.3.12 Profitability......189
5.3.13 Firm-specific Risk......190
5.3.14 Size......190
5.3.15 Collateral Value of Assets......191
5.3.16 Firm Maturity......191
5.3.17 Long-term Debt......192
5.4 THE DIVIDEND POLICY AND OTHER ISSUES......193
5.4.1 Industry......193
5.4.2 Timing......195
5.5 DATA AND METHODOLOGY......195
5.5.1 Model I......196
5.5.2 Model II......197
5.5.3 Model III......197
5.6 REGRESSION RESULTS......197
5.6.1 Australian DCs and MCs Dividend Payout Determinants......197
5.6.2 Effect of Multinationality on Dividend Payout......203
5.6.3 Interaction Effect on Slope Coefficients and Dividend Payout......205
5.6.4 Industry Effect on Dividend Payout......208
5.6.5 Time Varying Effect on Dividend Payout......210
5.7 CONCLUSION......214
- 6 - DIVIDEND POLICY OF MCs AND DCs – AN INTERNATIONAL COMPARISON......215
6.1 INTRODUCTION......215
6.2 AIM......217
6.3 DIVIDEND THEORY......221
6.3.1 21st Century View......221
6.3.2 Cash Dividend Versus Repurchase......222
6.3.2.1 Disappearance of Dividends......222
6.3.2.2 Reappearance of Dividends......224
6.4 DIVIDEND DETERMINANTS......226
6.4.1 The Dividend Policy and Country-specific Variables......227
6.4.1.1 International Differences – Economic and Structural......227
6.4.1.2 International Differences – Legal Regime......228
6.4.1.3 International Differences – Tax Regime......229
6.4.2 Dividend Policy and Other Issues......231
6.4.2.1 Industry......231
6.4.2.2 Timing......231
6.5 DATA AND METHODOLOGY......231
6.5.1 Model I......232
6.5.2 Model II......233
6.5.3 Model III......233
6.5.4 Model IV......234
6.5.5 Model V......235
6.6 PRELIMINARY RESULTS......236
6.7 REGRESSION RESULTS......247
6.7.1 Determinants of Cash Dividends and Dividends Slope Coefficient......247

6.7.2 Multinationality Effect on Dividend Pay out Ratios 255
6.7.3 Multinationality and Slope Difference of Cash Dividend and Dividends Payout 259
6.7.4 Country, Tax Law and Legal Regime Effect on Cash Dividends and Multinationality 264
6.7.5 Cross-country Partial Adjustment Test of Cash Dividends Payouts 267
6.7.6 Cross-country Industry Effects on Cash Dividends and Multinationality 269
6.7.7 Cross-country Time Variation Effect on Cash Dividends and Multinationality 271
6.8 CONCLUSION 273
- 7 - SENSITIVITY 275
7.1 INTRODUCTION 275
7.2 ALTERNATIVE VARIABLE SPECIFICATION 276
7.2.1 Long-term Debt to Total Asset 276
7.2.2 Total Debt 278
7.2.3 Cash Dividends to Total Assets 280
7.2.4 Z-score 283
7.2.5 Multinational Corporations and Diversification 283
7.3 ENDOGENEITY TEST BETWEEN CASH DIVIDENDS & LEVERAGE 288
7.4 2SLS TEST BETWEEN CASH DIVIDENDS AND LEVERAGE 289
7.5 ROBUSTNESS OF STATISTICAL ASSUMPTIONS 294
7.5.1 Multicollinearity 294
7.5.2 Influential observations 295
7.5.3 Heteroscadasticity 296
7.5.4 Autocorrelation 297
7.6 CONCLUSION 298
- 8 - SUMMARY & CONCLUSION 299
8.1 INTRODUCTION 299
8.2 KEY FINDINGS 299
8.3 LIMITATIONS, POSSIBLE EXTENSIONS AND FUTURE RESEARCH 302
BIBLIOGRAPHY 305
APPENDICES 330
APPENDIX 1 (A): Top 25 MCs (ranked by asset) from developed nations 331
APPENDIX 1 (B): Top 25 MCs (ranked by asset) from developing nations 332
APPENDIX 2 (A): Pearson Correlation Matrix for DCs 333
APPENDIX 2 (B): Pearson Correlation Matrix for MCs 334
APPENDIX 3 (A): Normality Test for DCs 337
APPENDIX 3 (B): Normality Test for MCs 338
APPENDIX 4: Residual vs. Fitted Values (DCs followed by MCs) 339

LIST OF TABLES

Table 1.1 Proportion of assets and sales distribution (US$ millions) for MCs across 5 sampled countries: Australia, U.S., Japan, U.K. and Malaysia in 2004 2
Table 1.2 Median market value, sales and total assets of DCs and MCs across 5 countries: Australia, U.S., Japan, U.K. and Malaysia 3
Table 2.1 An overview of data sources 19
Table 2.2 Selection procedures of final sample 19
Table 2.3 The structure of the final sample over 10 years across 5 countries 24
Table 2.4 Descriptive statistics for 5 sampled countries DCs and MCs dependent and independent variables over 10 years 41
Table 3.1 Yearly debt ratios across DCs and MCs and univariate analysis 82
Table 3.2 Capital structure determinants for Australian DCs and MCs over 1995-2004 85
Table 3.3 Capital structure determinants and controlling for multinationality in Australian firms 89
Table 3.4 Optimal level of foreign involvement in Australian firms 90
Table 3.5 Interaction effect for Australian DCs and MCs capital structure determinants 91
Table 3.6 The effect of additional international capital structure determinants for Australian DCs and MCs – credit risk, economic risk and finance risk 95
Table 3.7 Industry effect on Australian firms' capital structure 97
Table 3.8 Capital structure and speed of adjustment costs across Australian DCs and MCs 100
Table 3.9 t-test of adjustment costs across Australian MCs and DCs over 5 years capital structure 101
Table 3.10 Time variation on capital structure for Australian DCs and MCs 102
Table 3.11 Summary of Hypotheses and Results 103
Table 4.1 Firm values and capital structure across 5 sampled countries 111
Table 4.2 FDI structure for multinational firms across 5 sampled countries 112
Table 4.3 5 sampled countries' capital structure across 10 years 128
Table 4.4 Average annual capital structure across 5 sampled countries: 1995-2004 129
Table 4.5 Mean equality t-test for DCs' and MCs' capital structure for 5 sampled countries 132
Table 4.6 Capital structure (long-term debt) determinants across 5 sampled countries 140
Table 4.7 Capital structure (short-term debt) determinants across 5 sampled countries 144
Table 4.8 Testing of multinationality effect on long-term and short-term debt across 5 sampled countries 145
Table 4.9 Interaction effect to identify the difference of capital structure determinants across 5 sampled countries DCs and MCs 150
Table 4.10 Country, tax system and legal regimes effect in determining capital structure 154
Table 4.11 A direct testing of DCs' and MCs' characteristics and institutional difference in determining capital structure across 5 sampled countries 159
Table 4.12 Industry effect on 5 sampled countries DCs and MCs capital structure 162
Table 4.13 The trend of time effect in 5 sampled countries capital structure 165
Table 4.14 The speed of adjustments for DCs and MCs across long and short-term debt accros 5 sampled countries 168
Table 4.15 Summary of Hypotheses and Results 170
Table 5.1 The determinants of cash dividends and total dividends for Australian DCs and MCs 202
Table 5.2 The effect of multinationality on cash dividend and total dividend in Australian firms 204
Table 5.3 Interaction effects for cash dividend and total dividend determinants of Australian DCs and MCs 207
Table 5.4 Industry effect on cash dividend and total dividend for Australian firms 208
Table 5.5 Time variation effect on cash dividend and total dividend for Australian firms 210
Table 5.6 Incremental year effect for Australian DCs and MCs on cash dividend and total dividend .. 212
Table 5.7 Individual yearly effect on cash dividend and total dividend determinants for Australian firms 213
Table 6.1 Average annual cash dividend, share repurchase and total dividend payout ratios across 5 sampled countries: 1995-2004 237
Table 6.2 Univariate tests of cash dividend and total payout ratios between DCs and MCs across countries 245
Table 6.3 Univariate tests of cash dividend and total dividend payout ratios between DCs and MCs across different tax and legal regime 246
Table 6.4 Cash dividend and total dividend determinants for DCs and MCs across 5 sampled countries 253
Table 6.5 Multinationality effect in determining cash dividend and total dividend payments across 5 sampled countries 257

Table 6.6 Interaction effect in explaining the difference of cash dividend between DCs and MCs across 5 sampled countries 262
Table 6.7 Pooled sample with interaction slope dummy variables for multinational firms across 5 countries in explaining dividend 263
Table 6.8 Country effect, different tax and legal regime effect in determining cash dividend and total dividend for 5 sampled countries 266
Table 6.9 Test of partial adjustment (Lintner 1956) towards target cash dividend payout for DCs and MCs across 5 countries 268
Table 6.10 Ranking of partial speed of adjustment towards target cash payout across DCs and MCs 268
Table 6.11 Industry influence on cash dividend payments for DCs and MCs across 5 sampled countries 270
Table 6.12 Time variation impact cash dividend payout for DCs and MCs across 5 sampled countries 271
Table 6.13 Trend of time effect on cash dividend for DCs and MCs across 5 sampled countries 273
Table 7.1 Sensitivity measurements of long-term debt to total asset across 5 sampled countries 277
Table 7.2 Sensitivity analysis of total debt to total asset across 5 sampled countries 279
Table 7.3 Sensitivity analysis of cash dividends measured as cash dividends to total assets for DCs and MCs across 5 sampled countries 281
Table 7.4 The concavity effect of the depth and breadth of international operation and their impact on long-term debt across 5 sampled countries 285
Table 7.5 The concavity effect of the depth and breadth of international operation and their impact on cash dividend payout across 5 sampled countries 287
Table 7.6 2SLS in detection of endogeneity of cash dividends in long-term debt framework for DCs and MCs across 5 sampled countries 291
Table 7.7 2SLS in detection of endogeneity of debt in cash dividend payout framework for DCs and MCs across 5 sampled countries 292
Table 7.8 Test for autocorrelation 297

LIST OF FIGURES

Figure 3.1 Speed of adjustment costs across different debt for MCs and DCs over 1995-2004............. 101
Figure 4.1 Debt structure across 5 countries: 1995-2004.. 129
Figure 4.2 Comparison of DCs' and MCs' long-term debt across 5 countries over 10 years.................. 130
Figure 4.3 Average long-term and total debt ratios between DCs and MCs across 5 countries 132
Figure 6.1 Graph of cash dividend, share repurchase and total dividend for DCs and MCs across 5 sampled countries over 10 years 241
Figure 6.2 Direct comparison of cash dividend, share repurchase and total dividend across DCs and MCs across 5 countries... 242
Figure 6.3 Overall cash dividend behavior for DCs and MCs across countries: Australia, U.S., Japan, U.K. and Malaysia 243
Figure 6.4 Comparison of DCs and MCs cash dividend across 5 sampled countries over 10 years........ 244

- 1 -
INTRODUCTION

1.1 INTRODUCTION

Despite extensive research for over half a century, the determinants of capital structure and dividend policy for corporations remains a controversial issue in modern corporate finance.[1] Since the seminal work by Modigliani and Miller (1958), a plethora of research has been undertaken especially investigating the determinants of both capital structure and dividend policy on domestic corporations (DCs), especially in the U.S. Considerably less research has been published on both capital structure and dividend payout determinants for multinational corporations (MCs). It is surprising that the dynamics of financial structure decisions have not received much attention for MCs given that the MCs have become some of the most powerful economic and political entities in the world. For example, the revenues of the top 500 corporations in the U.S. equal about 60 percent of the country's gross domestic product (GDP) and the top six trading companies are nearly equivalent to the combined GDP of all of South America (World Investment Report, 2005). Further, in 2005 MCs held 90 percent of all technology and product patents worldwide, and were involved in 70 percent of the world trade (World Investment Report, 2005). The increase in globalisation suggests that the determinants of MCs' dividend payout ratios and capital structures[2] should be important for managers, shareholders and other stakeholders. Given the importance of MCs, it is perhaps surprising that relatively few studies have examined the unique financial variables explaining the dynamic levels of capital structure and dividend payout ratios for MCs. In addition, obtaining an understanding of the determinants of both capital structure and dividend payout ratios for DCs and MCs across countries with different legal and tax structure such as Australia, U.S., Japan, U.K. and Malaysia is of interest to financial decision makers, shareholders, financiers, politicians, government policy makers and academics.

[1] Throughout this thesis the terms company, firm and corporation are used interchangeably.

[2] Throughout this thesis the terms capital structure, long-term debt and leverage are used interchangeably.

The determinants of capital structure and dividend payout ratios have captured academic thought for many decades, particularly since Modigliani and Miller (1958). If optimal capital structures and dividends payout ratios do exist and if these structures maximise firm value, obtaining an understanding of the determinants of both capital structure and dividend policy is important in order to understand the way firms maximise their value. MCs control considerable assets and some control more assets than those controlled by some countries and therefore it is economically significant to study MCs' capital structure and dividend payout ratios and their determinants. For example, Table 1.1 (the detailed summary of these statistics can be found in Appendix 1A and 1B) shows the amount of foreign assets that MCs hold for our chosen sample countries. This table also provides a brief summary of the top 25 developed nations and top 25 developing nations MCs' wealth distribution around the world. The proportion of assets and sales for the chosen sample countries' hold 60% and 63% relative to the top 50 developed and developing MCs' total assets and sales around the world. Further, Table 1.1 also presents that the chosen sample countries MCs' foreign assets and sales relative to their total assets and sales are approximately 55% and 59% respectively. These figures are quite substantial from any financial decision maker's point of view.

Table 1.1
Proportion of assets and sales distribution (US$ millions) for MCs across 5 sampled countries: Australia, U.S., Japan, U.K. and Malaysia in 2004

Details of MCs' Origin	**Assets(US$)**		**Sales(US$)**	
	Foreign	**Total**	**Foreign**	**Total**
Australia (Developed Country)	50803	55317	17772	19086
U.S. (Developed Country)	803867	1773107	423971	886181
Japan (Developed Country)	147277	267269	141552	219587
U.K. (Developed Country)	497977	608244	372809	494192
Malaysia (Developing Country)	18992	59705	9470	26721
Total Sample Countries Assets and Sales	***1518916***	***2763642***	***965574***	***1645767***
Other Developed Countries (Top 25 MCs)	816301	1553845	436385	741582
Other Developing Countries (Top 25 MCs)	179608	483502	139168	537503
Total Developed Countries (Top 25 MCs)	2316225	4257782	1392489	2360628
Total Developing Countries (Top 25 MCs)	198600	543207	148638	564224
Grand Total (Developed and Developing Countries to 50 MCs)	***2514825***	***4800989***	***1541127***	***2924852***
% of sample countries wealth relative to top 50 MCs wealth around the world	*60%*	*58%*	*63%*	*56%*
% of sample countries wealth relative to their total wealth		*55%*		*59%*

Source: UNCTAD, World Investment Report 2005

Table 1.2 show the median figures of selected sampled countries' MCs market value, total sales and total assets over 1995-2004. It shows that the MCs in Australia are approximately three-fold larger relative to DCs in market value of the firms, total sales and total assets. A similar pattern is observed in U.S., U.K. and Malaysia but not in Japan. The market value of Japanese MCs are only approximately twice as high as Japanese DCs; however, Japanese DCs are approximately one and a half times larger in total sales and control of total assets relative to Japanese MCs. These differences may have an impact on the decision of capital structure choice and dividend payments.

Table 1.2
Median market value, sales and total assets of DCs and MCs across 5 countries: Australia, U.S., Japan, U.K. and Malaysia

This table presents the median annual values of market values, total sales and total asset figures of DCs and MCs across Australia, U.S., Japan, U.K. and Malaysia for 1995-2004. All figures are in millions of original currencies.

	AU		US		JP		UK		ML	
	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs
Market Value	1280	4120	30460	85570	755550	1982340	520	2140	1620	5170
Total Sales	1400	4340	34600	75980	372960	200600	830	3180	1620	5780
Total Assets	1570	4980	47120	86730	454710	306660	810	2300	3100	11330

The chapter is structured as follows: Section 1.2 considers the definitions of DCs and MCs adopted in this thesis, section 1.3 provides a brief overview of the theories of capital structure and dividend payout policy and section 1.4 provides the scope and the objectives of the thesis. Section 1.5 summarises the data, methodology and the key findings, while section 1.6 overviews the limitations and section 1.7 outlines the thesis.

1.2 DEFINITION OF MULTINATIONAL AND DOMESTIC CORPORATIONS

To identify the determinants of capital structure for DCs and MCs it is necessary to categorise corporations as either DCs or MCs. This can be achieved by considering what constitutes a multinational corporation. The remainder can then be regarded as domestic corporations. Several criteria have been suggested in the literature to define MCs, including foreign sales ratio (Geyikdagi, 1981; Errunza & Senbet, 1984; Fatemi, 1984, 1988; Kim & Lyn, 1986; Shaked, 1986), foreign tax ratio (Lee & Kwok, 1988) and the number of countries in which the firm operates through subsidiaries (Errunza & Senbet, 1984; Kim & Lyn, 1986; Michel & Shaked, 1986; Shaked, 1986). Burgman (1996) and Chkir and Cosset (2001) use the foreign tax ratio to classify firms as MCs. The foreign sales ratio has been popular but it does not differentiate between firms that earn income through export or firms that generate foreign source income through subsidiary operations. Thus, in this thesis MCs are corporations that have at least one subsidiary in another country (other than the domicile country) in which a firm operates and earn income (Tallman & Li, 1996). Domestic corporations, being the remainder.

1.3 Brief Overview of Capital Structure and Dividend Payout

1.3.1 Theories of Capital Structure

While Modigliani and Miller (MM, 1958) provide a starting point for the discussion of capital structure decisions of firms, regardless of the degree of multinationality (MCs), others (Ferri & Jones, 1979; Rajan & Zingales, 1995; Wald, 1999; Booth et al., 2000; Bevan & Danbolt, 2002; Fan, Titman & Twite, 2003 among others) attempted to explain the variation in debt financing either by examining the firm-specific factors or country-specific data to determine the optimal level of capital structure. Empirical work has revealed some important facts on capital structure choice, but this evidence is largely based on either firms in the U.S. or single country data. Further, it is not clear how the firm-specific and international environmental factors for MCs in different countries vary from each other. While a number of studies have been published that investigate the cross-sectional difference in capital structure between DCs and MCs during the 1990s (Lee & Kwok, 1988; Burgman, 1996; Homaifer & Benkato, 1998), no research has been undertaken thus far on a cross-country comparison of the determinants of capital between DCs and MCs.

Research published, particularly that by Rajan and Zingales (1995), attempts to apply theories of capital structure to international data (G-7 countries), while Wald (1999) examines firm characteristics that are not similarly correlated with leverage across countries. This thesis differs most from Rajan and Zingales (1995) and Wald (1999) in that, firstly, it examines each sampled country's MCs and DCs characteristics along with additional international environmental factors (political risk, foreign exchange risk and multinationality). Secondly, previous studies were based on short periods of data set whereas this thesis investigates ten years of data to 2004. Thirdly, this thesis investigates the differences on capital structure for DCs and MCs in five different sampled countries.

Modigliani and Miller (1958) show that a firm's choice of capital structure is irrelevant to its value under the assumptions of perfect markets. However, when markets are imperfect, the following have been found to be important determinants of a firm's capital structure: size (Titman & Wessels, 1988), agency cost (Bradley, Jarrell & Kim, 1984), bankruptcy costs (Homaifar & Benkato, 1994), non-debt-tax-shield (DeAngelo & Masulis, 1980) and growth and profitability (Myer, 1977).

In relation to firms operating internationally additional variables have been found significant in explaining capital structure. These include political risks, foreign exchange risk, diversification and multinationality (Lee & Kwok, 1988; Burgman, 1996; Akhtar, 2005). Further, regional differences are also important on firms capital structure decision (Rajan & Zingales, 1995; Wald, 1999; Doukas & Pantzalis, 2003). For example, although some countries are fairly homogeneous in their level of economic development, bankruptcy costs, tax code, corporate control and debt markets are different. Therefore, capital structures may be different among similar firms across the countries.

1.3.2 Theories of Dividend Payout

Much of what we know about dividend policy originates from a series of interviews conducted by Lintner (1956) and the subsequent development of a model consistent with these facts. At a theoretical level Miller and Modigliani (1961) showed that dividend policy is irrelevant to firm value. However, relaxing the assumptions associated with their model has shown that dividend policy may affect firm value and is influenced by several factors such as stability of earnings;

legal, tax and contractual requirements; stockholders' considerations; and firm-specific factors. Many of the factors that have been shown to influence dividend policy and firm value have been developed through empirical research on listed corporations. Regard for whether the corporations are DCs or MCs has not been considered. This is surprising given that the factors that have been identified as determinants of dividend policy could differ substantially in these two different types of corporations. For example, MCs may be more prone to international risks exposures (e.g. foreign exchange risk, political risk and the extent of multinationality). Given that previous studies have identified determinants of dividend policy from a sample of both DCs and MCs, the significance of these different types of firms is unknown. MCs have characteristics that are often very different from DCs and it may be these differences that have driven the results.

A number of researchers have provided insights, theoretical as well as empirical, into the determinants of dividend policy. However, a complete explanation as to why firms pay dividends is as yet unresolved. Several rationales for a corporate dividend policy have been proposed in the literature, but there is no unanimity among researchers.

The issue of dividend policy is important for several reasons. First, researchers have found that a firm uses dividends as a mechanism for financial signalling to outsiders regarding the stability and growth prospects of the firm (Litzenberger & Ramaswamy, 1979, 1982; Rozeff, 1982; Schooley & Barney, 1994; La Porta et al., 2000). Secondly, dividends play an important role in a firm's capital structure (Kalay, 1982; DeAngelo & DeAngelo, 1990; Jensen et al., 1992; Long et al., 1994; Mougoue & Mukherjee, 1994; Adedeji, 1998). Yet another set of studies have established the relationship between firm dividend and investment decisions Kogut, 1985; Barlett & Ghoshal, 1989). According to the 'residual dividend' theory, a firm will pay dividends only if it does not have profitable investment opportunities.

A firm's dividend policy is determined by a trade-off between retaining earnings for reinvestment and paying a dividend to shareholders (Dittmar & Dittmar, 2004). Much of what we know about dividend policy originates from Lintner (1956). Following Lintner (1956), Miller and Modigliani (1961) proposed a model that under certain conditions showed that dividend policy was irrelevant to firm value. That is, it did not matter what dividend policy managers chose, the value of the shares would be unaffected by the dividend decision. This model is essentially based on zero arbitrage. If a firm could influence its value through changing its dividend policy, the premium enjoyed by this firm would quickly disappear as other similar firms followed suit. However, since the early studies, research has shown that dividend policy can be explained by factors such as firm size (Barlett & Ghoshal, 1989; Fama & French, 2001), growth opportunities (Rozeff, 1982; Smith & Watts, 1992; Schooley & Barney, 1994), agency cost (Jensen & Meckling, 1976, 1986), levels of free cash flow (Jensen, 1986), debt, tax (Litzenberger & Ramaswamy, 1979; DeAngelo & Masulis, 1980), earnings volatility (Asquith & Mullins, 1983; Miller & Rock, 1985) and profitability (Barlett & Ghoshal, 1989; Fama & French, 2001). Dividend policy may be influential on share value. However, a general model of dividend policy has not yet been developed. Firms come in a multitude of different sizes and forms and one important distinction is between DCs and MCs. This distinction provides a rich area of research on issues such as dividend policy. Obtaining a better understanding of the differences in dividend policy in these two types of firms will shed light on factors that may be influential in maximisation firm value. MCs control considerable amounts of assets and wealth, and obtaining evidence on their approach to dividend policy is an area of research that is severely lacking.

1.3.3 Speed of Adjustment Costs for Capital Structure and Dividend Payout Ratios

Firms may adjust their capital structure and dividend payout ratios to a target level from year to year. The magnitude of this adjustment depends on the costs and benefits that associate with the adjustments towards the optimal level of capital structure and dividend payout ratios. A firm cannot instantly change its capital structure and dividend payout decision to reach to a target level at any given time without incurring some costs. These costs are known as adjustment costs. The speed of adjustment is how quickly a firms rebalances their target level of capital structure and dividend payouts from time to time. The trade-off theory of financial structure determines the costs and benefits of these adjustments. Thus far, previous empirical studies implicitly assume that firms adjust their capital structure and dividend payout ratios on a continuous basis and the process is costless. Flannery and Rangen (2006) argue that if previous studies have inappropriately constrained firms to make continuous adjustments, they may have distorted conclusions about whether firms rebalance their capital structure magnitude and the rate of changes.

Given the considerable differences between DCs and MCs it is hypothesised that speed of adjustment will differ between these two types of corporations.

1.3.4 Endogeneous Relationship between Capital Structure and Dividend Payout Ratios

Recently, Fama and French (2002) argue that the finance literature offers two competing models of financing decisions. Firstly, in the trade-off model, firms identify their optimal leverage by weighing the costs and benefits of an additional dollar of debt. The benefits of debt include, for example, the tax deductibility of interest and the reduction of free cash flow problems. The costs of debt include potential bankruptcy costs and agency conflicts between stockholders and bondholders. At the optimal level, the benefit of the last dollar of debt just offsets the cost. Firms maximise value by selecting the dividend payout that equates the costs and benefits of the last dollar of dividends. Secondly, Myers (1984) develops an alternative theory known as the pecking order model of financing decisions. The pecking order arises if the costs of issuing new securities overwhelm other costs and benefits of dividends and debt. The financing costs that produce pecking order behaviour include transaction costs associated with new issues and the costs that arise because of management's superior information about the firm's prospects and the value of the firm. Because of these costs, firms finance new investments first with retained earnings, then with safe debt, then with risky debt, and finally under duress, with equity. As a result, variation in firm leverage is driven not by the trade-off model's costs and benefits of debt, but rather by a pecking order.

Given the trade-off and pecking order models share many predictions about dividends and debt, it is clear that there is interdependence between capital structure and dividend payout which demands a test of an endogenous relationship. Failure to address the effect of endogeneity may lead to wrong conclusions in the financial decision-making process. Further, it would be interesting to investigate how this endogenous relationship holds across DCs and MCs because the additional benefits and costs that MCs experience through international involvement might have a different impact on the extremity of the endogeneous relationship between capital structure and dividend payout ratios for MCs relative to DCs. .

1.4 SCOPE AND OBJECTIVES OF THE STUDY

The intent of this research is to provide additional empirical analyses on capital structure and dividend policy literature across DCs and MCs in different countries. The studies that investigate the capital structure and dividend payout ratios of corporations across different countries are somewhat dated, use limited data, or have a narrow focus on firm types (Lee & Kwok, 1988; Rajan & Zingales, 1995; Burgman, 1996; McClure, Clayton & Hofler, 1999; Booth et al., 2001). Therefore, this thesis investigates the different financial and institutional traditions of DCs and MCs in Australia, U.S., Japan, U.K. and Malaysia. This will help to ascertain whether different financial and institutional traditions do impact on capital structure and dividend payment determinants. Secondly, the data for most of the previous studies do not cover the period through the mid-1990s to early 21st century when there were important developments in the globalisation of financial markets (McClure, Clayton & Hofler, 1999; World Investment Report, 2005), especially when barriers to entry to many countries were removed and it provided MCs with the opportunity for global expansion. Thus, this thesis examines whether there are systematic differences in the determinants of capital structure and dividend payout ratios between DCs and MCs across countries, and whether there are additional, uniquely international, factors that may help to explain the capital structure and dividend payment choices of MCs. Thirdly, given the problems potentially encountered by firms as they attempt to establish optimal global financial structures, it is important to determine whether financial norms and practices vary across countries. These countries represent different financial structures and traditions. The U.K. and U.S. are known to follow the English tradition where there are large numbers of publicly-listed companies, and hostile takeovers owing to agency conflicts are common ((La Porta et el., 2002). Japan follows a unique Japanese tradition where corporate decisions and restructuring are made through the involvement of universal banks and financial holdings (La Porta et el., 2002). On the other hand, Malaysia is known to follow the Latinic tradition where corporate ownership structure can be characterised by family control, financial holdings, state ownership, cross-shareholdings, and where agency problems are internalised (Booth et al., 2001; (La Porta et el., 2002). Financial theory would suggest that in an efficient global market the capital structure and dividend payments of similar firms in different countries would be the same (McClure, Clayton & Hofler, 1999). If international market imperfection existed through the mid-1990s and early 21st century, capital structures, dividend payout ratios and associated costs may be different among similar firms in different countries and business advantages (or disadvantages) may provide profits (or costs) to firms incorporated in different countries. Fourthly, the recent evidence of considerable time variation in cash dividends (disappearance versus reappearance) in U.S. firms begs the question of whether the types of firm (e.g. MCs vs. DCs) have any impact on this and also whether this trend is in existence in other countries around the world. Fifthly, the speed of adjustment costs for firms in adjusting the capital structure and dividend payments have not been investigated for DCs and MCs. Sixthly, the interrelationship that exists between capital structure and dividend payout ratios creates an endogeneity which has a significant statistical implication. Therefore, failing to account for this endogeneity may lead to wrong conclusions. No attempt thus far has been made to investigate the endogenous relationship of capital structure and dividend payout within the framework of DCs and MCs. Therefore, the endogeneity between capital structure and dividend policy will be considered for DCs and MCs. Seventhly, the industry effect on DCs' and MCs' capital structure and dividend payout ratios is considered as prior studies indicated that industries have significant impact on capital structure and dividend payout decisions. Lastly, the relationship between financial structure and overseas operation, especially for MCs, has led in recent years to the development of a considerable literature that underlies its time-variant effects (Bernanke & Gertler, 1989; Greenwald & Stiglitz, 1993). Thus an intention of this study is to update the literature by shedding light on the role of these financial and institutional traditions on capital structure and dividend payment decisions across countries. In this aspect, the focus of this thesis is on answering the following questions:

- Do capital structure and dividend payout ratios differ significantly between DCs and MCs and across the sampled countries?
- Does the dividend appearance and disappearance (captured through dividend payout ratios: cash dividend payout ratios versus cash and share repurchase dividend payout ratios) exist between DCs and MCs and across countries?
- Do international factors explain MCs' capital structure and dividend payout decisions better than DCs across the sampled countries?
- Are the predictions of conventional capital structure and dividend payout determinants improved by knowing the nationality of DCs and MCs?
- Does the speed of adjustment costs vary between DCs and MCs and across the sampled countries?
- Does the endogeneity have a significant impact on the determination of capital structure and dividend payout ratios between DCs and MCs across the sampled countries?
- Does industry play a significant role in determining DCs' and MCs' capital structure and dividend payout ratios?
- Is capital structure and dividend payout ratios of DCs and MCs time-variant? Are the factors that affect cross-sectional variability in individual countries' capital structures similar across the sampled countries for both MCs and DCs ?

The last question is particularly important, because institutional factors such as tax rates and business risk, profitability and growth can result in different financing patterns in DCs' and MCs' capital structure and dividend payments across countries, which then show up in firm-level data as well as aggregate data. Therefore, it is believed that the additional information and efficiency that can be extracted from a time series and cross-sectional data set can considerably improve the understanding of the relevance of financial market imperfections in different economies and will allow a better understanding of the determinants of firms' capital structures and dividend policies across countries.[3]

1.5 Significance and Contribution of the Study

This thesis will provide a sound foundation for further work and the better understanding of corporate capital structure and dividend policy in firms. Given the existing empirical research that shows capital structure and dividend policy are important in firm value, understanding the determinants, adjustment costs of capital structure and dividend policy will have important financial implications for firms. MCs control vast amounts of wealth and even a small change in their value has substantial financial implications. This research will provide the base for further research on the implications of capital structure and dividend policy on firm value. Further, this thesis has significant practical import as the results will be useful to corporations in their management of capital structure and dividend policy within their organisations and across groups of organisations.

1.6 Data and Methodology

The data set comprises 10 years of data for five countries: Australia, U.S., Japan, U.K. and Malaysia. These countries were selected because they represent different major economic regions including Europe, America, Pacific, and Asia. The countries were also chosen because they reflect the English-speaking capital markets and Continental-Japanese banking systems and Malaysia's Latinic style of business operation. The diversity of cultural and economic factors in these countries should provide an adequate test of capital structure and dividend payout models. The sample consists of 11956 firm years (6038 DCs and 5918 MCs) from 1995 to 2004. Univariate and Ordinary Least Square (OLS) regression models are utilised to test the proposed hypotheses. OLS regression method is justified to suit the purpose of the analysis since our capital structure, dividend payouts and their determining factors are normally distributed.

[3] Exceptions are Rajan and Zingales (1995), Wald (1999), McClure, Clayton and Hofler (1999) and Booth et al. (2001).

Different econometric models are developed across chapters to investigate the intentions of this thesis. The nine queries raised in the introduction have been answered throughout the discussion and analysis in chapter 3, 4, 5, 6, 7 and 8. The following discussion is a brief summary of the overall results of this thesis.

1.7 SUMMARY OF THE THESIS

1.7.1 Key Findings of Essay I

Essay I (Chapter 3) investigates the determinants of Australian MCs' and DCs' capital structure from 1995 to 2004, focusing on multiple measurements of dependent variables (debt ratios), the effect of multinationality, the nonlinearity effects or optimal involvement of firms' international operation, the impacts of additional financial variables on debt ratios, and time variation of capital structure across MCs and DCs through speed of adjustments. The results show that after controlling for multinational effects, foreign exchange risk, firm-specific risks, average tax rate, size, age, cash dividend payments, free cash flow and growth variables are significant determinants for long-term debt across DCs and MCs. These results are insensitive to the definition of long-term debt ratio adopted. Multinationality is also a significant variable in explaining long-term debt ratios. In explaining short-term debt ratios, the significant determinants are bankruptcy risks, firm-specific risks, age and free cash flows. The impact of increasing Australian firms' global association through foreign sales (depth) and number of subsidiaries (breadth) show no significant optimal relationship with debt ratios. In relation to interaction effects that explain the differences between DCs' and MCs' debt ratios, the significant interaction factors are diversification and age for long-term debt ratios while diversification, bankruptcy risks and growth are significant for short-term debt ratios. Additional financial factors – credit-risk, economic-risk and financial-risk have no significant impact on capital structure; however, inclusion of these variables largely improves the explanatory power of the model. When industry effects are considered, the significance of the original determinants remains unchanged, but some industries become significant. Finally, the capital structure varied significantly over the sample period. This variation is explained by the positive significant speed of adjustment, indicating the possible existence of positive net benefit in annual adjustment of the capital structure towards their target level. Further, results also suggests that MCs in Australia adjust their target levels of debt faster relative to their counterparts DCs.

1.7.2 Key Findings of Essay II

Chapter 4 (Essay II) is an extension of Chapter 3 (Essay I). This chapter uses a unique data set to assess whether capital structure theory is portable across sampled countries with different institutional characteristics. Chapter 4 has eight major findings. Firstly, the determinants of long-term debt ratios between DCs and MCs differ across the sample countries. For DCs foreign exchange risk, size and collateral value of assets are the only factors that are consistently significant across the sample countries' DCs. To the contrary, no consistent significant determining factors are observed in MCs' across the sampled countries. Diversification plays an important role in explaining short-term debt ratios between DCs and MCs across all sample countries. Secondly, the results show that MCs hold significantly less debt (both short-term and long-term debt) than DCs in the U.S., while Malaysian MCs hold significantly higher debt (both short-term and long-term debt) than their DCs counterparts. Thirdly, country effects show that Australia, Japan U.K. and Malaysia hold significantly less long-term debt relative to U.S. firms. However, no significant difference is observed in firms' short-term debt across sampled countries. Fourthly, corporations operating under a imputation tax system (Australia and U.K.) hold significantly less debt (both short-term and long-term debt) as opposed to firms operating under classical tax system countries (U.S., Japan and Malaysia). Fifthly, firms operating in common law countries (Australia, U.S., U.K. and Malaysia) have significantly less debt (both short-term and long-term debt) than the firms operate in civil law country (Japan). Sixthly, industry and time effects are not consistent across DCs and MCs; however, industry and time effects across countries supports the hypothesis that industry and time effect is significant, albeit variable across countries. Finally, the speed of adjustment confirms that Australian and Japanese MCs adjust their long-term debt ratios towards their target level faster than their DCs counterparts, while U.K. and Malaysian MCs exhibit the opposite. Furthermore, Australian, U.S. and U.K. MCs adjust their short-term debt ratios towards their target level relatively quicker than DCs counterparts.

1.7.3 Key Findings of Essay III

Chapter 5 (Essay III) provides evidence regarding the relationship between the dividend payout ratios and its determinants (firm-specific, international factors, industry classification and time) across 994 Australian DCs and 1254 MCs over the period of 1995 to 2004. In considering dividend payout ratios we adopt two definitions – cash dividends and total dividends. The cash dividend payout ratios consists of cash dividends to net earnings while total dividend payout ratios consists of both cash dividends and share repurchases to net earnings. This chapter considers the effect of multinationality in determining the dividend payout ratios. The regression results suggest that the determinants of dividend payout ratios vary across DCs and MCs. The results also show that diversification, profitability, firm-specific risk, size, collateral value of assets and financial slack are the significant variables that explain the difference in cash dividend payout ratios while tax clientele, cash flow variability and financial slack explain the difference between Australian DCs' and MCs' total dividend payout ratios. The results also indicate that diversification, stock return, tax clientele, cash flow variation, profitability, company-specific risks, firm size and financial slack variables are significant in explaining dividend payout ratios (both cash and total dividend payout ratios) for Australian DCs'. For Australian MCs, the determinants of cash dividend payout are tax clientele, profitability, collateral value of assets and leverage. In addition to slack variable, similar factors also explain the total dividend payout ratios for MCs. Controlling for industry effect and time variation effect show that the impacts of industry influence and time affects vary across DCs and MCs; however, the initial results remain unchanged.

1.7.4 Key Findings of Essay IV

Chapter 6 (Essay IV) is an extension of Chapter 5 (Essay IV). This chapter investigates a comprehensive and comparative relationship between dividend payout ratios and their determinants across DCs and MCs for Australia, U.S., Japan, U.K. and Malaysia. This chapter has four major findings. Firstly, results show that stock return, cash flow variation, profitability and age are significant factors in explaining cash dividend payout ratios for DCs across countries. Meanwhile tax clientele, cash flow variation and profitability are significant factors in explaining cash dividend payout ratios for MCs across countries. These results are sensitive to the definition of total dividend payout ratios. Secondly, the determinants that explain the difference between DCs' and MCs' cash dividend payout ratios across countries are diversification (Australia and U.S.), agency costs and average tax ratios (U.K. and Malaysia), tax clientele (U.S. and Malaysia) and cash flow variation (Japan and Malaysia). The common determinants explaining the difference of DCs' and MCs' total dividend payout ratios changes but only for U.S. corporations. Determinants that become significant are political risks, stock return, profitability and age. Thirdly, controlling for country effects shows that firms operating under an imputation tax system (Australia and U.K) and common law environments (Australia, U.S., U.K. and Malaysia) pay comparatively higher dividends relative to firms operating in a classical tax system (U.S., Japan and Malaysia) and civil law environment (Japan). It results also show that MCs operating in an imputation tax system and common law regime pay significantly lower dividends relative to the DCs counterparts. Fourthly, Lintner's (1956) model is considered to investigate the difference in speed of adjustment in cash dividends towards a target level between DCs and MCs across the five sampled countries. The results suggest that MCs in Australia, U.S. and Malaysia adjust their target cash dividend payout ratios faster than their DCs counterparts. The opposite holds for Japanese and U.K. MCs.

Finally, sensitivity analysis of alternative measurement proxies of dependent and independent variables suggest that the initial findings are robust and reliable. Further, results for test of endogeneity indicated a significant endogeneous relationship between leverage and cash dividends. Adjusting for endogeneity did not alter the overall conclusion.

1.8 OUTLINE

The thesis is organised in the following manner. Chapter 2 presents description of data collection and the definition of variables used in the subsequent chapters. Chapter 3 consists of ***Essay 1***: Capital structure determinants of Australian domestic and multinational corporations. Chapter 4 details ***Essay 2***: Capital structure determinants for domestic and multinational corporations – an international comparison. Chapter 5 presents ***Essay 3***: Dividend payout determinants of Australian domestic and multinational corporations. Chapter 6 considers ***Essay 4***: An international study of dividend payout determinants for domestic and multinational corporations – an international comparison. Chapter 7 provides sensitivity analysis while Chapter 8 includes a summary and the conclusions of the study.

- 2 -
DATA

2.1 INTRODUCTION

This chapter describes the data set and the collection process employed to study the hypotheses developed in Chapters 3, 4, 5, 6 and 7 respectively. Section 2.2 describes the sources and provides a brief overview of the dataset. Section 2.3 presents the sample selection and filtering process to obtain a data set that facilitates a valid investigation of the sample of DCs' and MCs' capital structure and dividend policy across five countries – Australia, U.S., Japan, U.K. and Malaysia for the period 1995-2004. Section 2.4 to section 2.6 describes the measurement of dependent and independent variables. Section 2.7 outlines the sample characteristics. Section 2.8 investigates the robustness of the data set while section 2.9 provides a summary of the data chapter.

2.2 DATA SOURCES AND OVERVIEW

The theory and practice of business finance suggest that the dividend payout ratio and capital structure or long-term debt ratio is not constant within a sector or industry, but depends on certain firm characteristic and economic factors. In this study, financial ratios are used as firm characteristics. Financial ratios are the most commonly used measures in the analysis of a firm's financial performance.

This study is based on financial data collected from the balance sheet, income statement and cash flow statement in a total of 11954 DCs (6036) and MCs (5918) across Australia, U.S., Japan, U.K. and Malaysia from 1995-2004. The main sources of data are presented in Table 2.1. Firstly, the top 500 firms in each stock exchange across five countries are selected from each country's stock exchange. Secondly, Osiris database is employed to identify multinational corporations and domestic corporations based on their overseas sales and number of international subsidiaries. Thirdly, firm characteristic data is collected from Compustat-Global in conjunction with Osiris database. Fourthly, Datastream Advance is used to obtain firms' return series. Finally, PRS Handbook is utilised to collect country-specific political risk ratings and other financial risk ratings.

The Osiris and Compustat-Global are designed to provide data in a manner that allows maximum comparability between one company and another, and between various reporting regimes.

Table 2.1
An overview of data sources

Data Description	Data Sources
Country Stock Exchange	Worldwide Web
Firm Segmental Data	Osiris Database (Bureau of Vandyke Data Bank Group)
Firm Characteristic Data	Compustat-Global Database (WRDS)
Firm Return Series	Datastream Advance
Political Risk Ratings	PRS Country Risk Handbook

2.3 SAMPLE SELECTION AND DATA FILTERING

2.3.1 Sample Selection

Table 2.2 gives a brief overview of sample selection of DCs and MCs across each of the five countries (Australia, U.S., Japan, U.K. and Malaysia). To fulfil the purpose of this study, a sample of 6036 DCs and 5918 MCs are drawn from the five countries' Stock Exchange-listed firms over the period of 1995-2004.

Table 2.2
Selection procedures of final sample

This table presents the summary of total sample selection and the filtering process for all firms. DCs and MCs are domestic corporations and multinational corporations respectively while country acronyms of AU, US JP, UK and ML are Australia, United States, Japan, United Kingdom and Malaysia. The first compartment of the table lists the detailed description of the data filtering process while the second and third compartment contains the data filtering process for DCs' and MCs' final sample selection.

Sample Selection Process	Number of Observations (DCs)					Number of Observations (MCs)				
	AU	US	JP	UK	ML	AU	US	JP	UK	ML
Initial Sample	3996	8852	4125	6890	3012	2789	6945	2969	6064	3196
a. Less Foreign Multinationals						-690	-3055	-1165	-3156	-1065
b. Less Investment, Bank, Insurance and Trust	-1485	-3712	-1565	-3145	-715	-478	-1382	-616	-1009	-366
c. Less Inefficient Sample Period (minimum 3 years)	-1112	-2410	-889	-2329	-290	-177	-505	-189	-179	-456
d. Less Lack of Detailed Reporting of Relevant Information	-316	-1130	-455	-489	-112	-129	-289	-99	-112	-214
e. Less Different Reporting Period	-89	-229	-123	-208	-34	-61	-97	-86	-139	-131
Total Final Samples	***994***	***1371***	***1093***	***719***	***1861***	***1254***	***1417***	***814***	***1469***	***964***

2.3.2 Selection of Time Period

To test the hypotheses developed in the following four chapters, the sampling period chosen for the purpose of this thesis covers the end of financial year from 1995 to 2004. The choice of this sample period is appropriate for time series and cross-sectional analysis. The choice of this sample period acknowledges that it enables a proper cross-sectional investigation of dividend payout and capital structure as it satisfies the definition of DCs and MCs with a sufficient number of observations in each year. Moreover, the purpose is also to observe whether any dividend payout and capital structure determinants vary their significance levels across time. A 10-year period is sufficient for this analysis.

2.3.3 Selection of Countries

Financial theory would suggest that in an efficient global capital market the dividend payout and capital structure of identical firms in different nations would be the same. Empirically, similar firms would trend towards similar financial structures, unless there are still fundamental differences in the national capital markets in which they operate and barriers exists to the efficient flow of information and capital across countries. Since country differences exist, dividends (both cash dividends and total dividends (cash and share repurchase)) and capital structures may be different among similar firms in different nations. Therefore, a cross country comparison is useful to investigate to what extent the dividend payout and capital structure vary across countries. The reasons for selecting the five sample countries for this thesis are briefly discussed below.

Five countries were selected because they represent one of five different geographical segments namely, Australia from the South Pacific-continent; the U.S. from the American- continent; Japan from the Asia-continent; the U.K. from the Europe-continent; and Malaysia from the East Asian-continent, which are quite different in their economic and business activities.

Firstly, the motivation of choosing Australia was mainly due to the lack of previous studies investigating the determinants of dividend payout and capital structure on DCs and MCs, and also because Australia is regarded as one of the most active and innovative markets for securitised debt in the world (World Investment Report, 2005). The fact that corporate debt issue increased from $A10 billion in 1996 to $A15 billion in 2000[4] certainly demands a closer look at Australian firms' debt and its determinants. Further, the Australian imputation tax system impacts both dividend payout and capital structure decision both from firm and shareholders' point of view, which makes Australia an attractive candidate to include in the study. Secondly, the reason for selecting the U.S. was purely because the few studies that have investigated the U.S. in an older data set with limited periods do not necessarily give a whole picture of U.S. DCs' and MCs' capital structure and dividend payout. However, it is at least a minimum reference to compare the results with the rest of the countries chosen. In addition, U.S. capital structure is more sensitive to default risk than that of Japan (Rajan & Zingales, 1995). This suggests that the expected bankruptcy costs of U.S. firms may be larger than Japan. Further, retentions and bond markets are the major sources of finance for U.K. and U.S. firms. Thirdly, Japan is chosen since the Japanese firm characteristics are unique in the sense that the banks are the dominant source of finance. Further, their legal system and commercial law is modelled on the German system. For example, Japan follows the German system of using reserves to increase the financial strength of the company. Finally, the sample country of Malaysia is chosen because its corporate financial structure is relatively different from the other four countries. For example, Malaysian corporations use their income proceeds to finance their regular investments. Further, the Malaysian government established the Corporate Debt Restructuring Committee (CDRC). The CDRC aims to facilitate voluntary corporate restructuring by coordinating voluntary negotiations and responsibilities between creditors and corporate debtors. The CDRC also intends to minimise losses to creditors, shareholders and other stakeholders, preserve viable business, and implement a comprehensive framework for debt restructuring (World Investment Report, 2005). In addition, the Malaysian government

[4] Source: Axiss Australia – Australia's Debt Securities Market, Executive Briefing, a2a Newsletter, 2003.

plays a more substantial role in stock market formation and development, by pursuing aggressive pro-equity financing policies and placing limitations on debt financing of firms, especially from abroad (Singh, 1995).

Choosing these countries highlights the differences in their capital structure and dividend payout determinants – if there are any. For each country, the main stock exchange website was used to obtain a sample of all listed companies for each year from 1995 to 2004. The stock exchanges selected for each country are:

- Australia: Australian Stock Exchange
- U.S.: New York Stock Exchange
- Japan: Tokyo Stock Exchange
- U.K.: UK Stock Exchange
- Malaysia: Kuala Lumpur Stock Exchange.

From the sample of firms selected from each exchange for each year, both the Osiris database and Compustat-Global database are searched for annual report information. From annual report information, segment information is used to determine if the firms reported business activity from another country. If business activity was reported from more than the domiciled country, it was coded as an MC; if it did not, it was coded as a DC. The number of firms satisfying these requirements for each country is represented as the initial sample in Table 2.2.

MCs could have subsidiaries listed on overseas exchanges. For example, a U.S. multinational also could be listed on the Australian Stock Exchange. Including this firm as an MC in Australia and the U.S. would result in double counting. The technique that is used to identify such MCs in foreign multinationals listed on a non-domiciled exchange is to report financial statements in the domiciled currency and not the currency of the country where they are listed. Therefore, to avoid double counting, firms reporting in a non-domicile currency are excluded as they are foreign MCs. The number of firms excluded on this criterion is shown at (a.) in Table 2.2.

Firms in the financial and regulated industries have dividend payout and capital structures that are determined by levels of deposits and financial regulation. Determinants of dividend payout and capital structure for these firms are considerably different from other firms, and as a result are excluded (Fama & French, 2002; Flannery & Rangan, 2006). Financial organisations excluded under this criterion are shown at (b.) of Table 2.2.

A minimum of three years of data was necessary for some variables. Firms with less than three years of data for estimation of these variables were excluded. This is shown at (c.) in Table 2.2. Also some firms were excluded as the reported figure duration is less than 12 months. Since some of the proxies required a full year of observation to be consistent across other variables, a full year of reporting was important. This is indicated by (d.) in Table 2.2. Further, we define annual observations on the basis of fiscal time (as opposed to calendar time) because sample firms use a variety of fiscal year ends across countries.

Finally, two important statistical conditions are also applied so that the final sample size is statistically valid to use in the multivariate regressions. The conditions include a reasonably large sample selected at random from large populations which is, on average, representative of the characteristics of that population. Secondly, it is statistically advisable that large groups of data show a higher degree of stability than a smaller data set. Since there are a large number of independent variables, a reasonable amount of observations are required to produce reliable and unbiased estimates (eg. degrees of freedom). For example, the sample selection was such that it allows enough observations in each year (minimum 30 observations to meet the central limit theorem) to do a cross-sectional analysis of dividend payouts and capital structure determinants between DCs and MCs across five countries across each year. Also, the comparability of data does suffer from large differences in observations among the countries. This should not bias the results since each country is analysed and compared separately, and for each country the number of observations is sufficiently large for parametric comparisons.

A breakdown and stratification of the sample on a yearly basis is presented in Table 2.3 (Panel A) while Table 2.3 (Panel B) illustrates industry distribution. Table 2.3 shows that, overall, the numbers of DCs and MCs have doubled from the mid-1990s to the early 2000s. The U.K. has considerably higher numbers of MCs than the other countries in each year (1469). It is also clear that the U.K. has less DCs than other countries (719). Japan and Malaysia have less MCs than the other countries. Also Malaysia has twice as much DCs than MCs listed on their stock exchange.

Table 2.3
The structure of the final sample over 10 years across 5 countries

Table 2.3 Panel A provides a description of the sample in detail including the number of DCs (Domestic Corporations) and MCs (Multinational Corporations) that is available for each country across five countries. The country acronyms of AU, US, JP, UK, and ML are Australia, U.S., Japan, U.K. and Malaysia respectively. Panel B presents Industry distribution while Panel C provides the distribution of sampled countries MCs' geographic location of subsidiaries.

Panel A – Sample Distribution across Years

Panel A	AU		US		JP		UK		ML		Total		Grand Total
	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs	
1995	62	72	99	89	52	99	58	157	82	52	**353**	**469**	**822**
1996	67	97	103	127	56	69	63	109	73	66	**362**	**468**	**830**
1997	73	105	105	144	59	79	61	164	90	73	**388**	**565**	**953**
1998	88	112	120	150	88	75	66	121	129	100	**491**	**558**	**1049**
1999	101	125	141	137	105	77	69	142	240	108	**656**	**589**	**1245**
2000	109	133	142	146	131	75	76	152	237	106	**695**	**612**	**1307**
2001	133	150	161	119	142	78	72	177	257	97	**765**	**621**	**1386**
2002	121	155	163	162	163	73	79	164	258	119	**784**	**673**	**1457**
2003	125	159	175	173	157	91	82	147	261	122	**800**	**692**	**1492**
2004	115	146	162	170	140	98	93	136	234	121	**744**	**671**	**1415**
Total	**994**	**1254**	**1371**	**1417**	**1093**	**814**	**719**	**1469**	**1861**	**964**	**6038**	**5918**	**11956**
Total DCs & MCs	**2248**		**2788**		**1907**		**2188**		**2825**		**11956**		

Table 2.3 Panel B reports that, generally, both DCs and MCs are either manufacturing or retail industries across the five sampled countries. The proportion of DCs that fall in the manufacturing sector ranges from 15% to 29%, while MCs range from 15% to 25%. Similarly, the proportion of DCs that fall in the retail sector range from 19% to 34% while MCs range from 15% to 31% across the countries. However, there is a slight difference in the industrial distribution of Australian firms. It is clearly visible that in our total sample of 2248 Australian firms, the proportion of mining DCs and MCs are 21% and 25% respectively. In the UK however, the majority of the DCs and MCs are in the retail (33% and 31%) and manufacturing (23% and 38%) sectors. U.S. DCs and MCs are generally more stratified across different

industries relative to the other countries. Malaysian sample firms' industry distribution is similar to Australian firms (with an exception of mining industry) where the majority of the DCs and MCs fall in the agricultural, forestry and fishing; building construction and heavy construction; manufacturing and retail sectors. It is clearly visible that in our chosen sample range, there is an approximate equal distribution of sample selection across industries between DCs and MCs.

Panel B – Sample Distribution across Industries

Table 2.3 Panel B provides the US Standard Industrial Codes classification for five countries' industry distribution of Multinational Corporations (MCs) and Domestic Corporations (DCs), including the proportion of total sample. The acronyms for the industries are: There are ten industries in the sample and a dichotomous variable is used to capture each of these industries' effect (except *IND_H*: Finance, Insurance and Real Estates) on capital structure and dividend payout ratios. The industries are: *IND_A_AGRI_FISH* (agricultural, forestry and fishing); *IND_B_MINING* (metal, coal, oil and gas); *IND_C_CONSTRUCTN* (building constructions and heavy constructions); *IND_D_MNFCTRNG* (manufacturing, food, Tobacco, Textiles, Furniture and Fixtures and Papers); *IND_E_TRNSPT_CMCTN* (Transport, Communication, Electric, and utilities); *IND_F_WHOLESALE* (wholesale trade and durable goods); *IND_G_RETAIL* (retails), *IND_H*: Finance, Insurance and Real Estates) and *IND_I_SERVIC* (health, legal, educational, engineering and social).

Panel B	AU				US				JP				UK				ML			
US SIC	DCs	%	MCs	%	DCs	%	MCs	%	DCs	%	MCs	%	DCs	%	MCs	%	DCs	%	MCs	%
IND_A	107	11%	121	10%	65	5%	75	5%	61	6%	38	5%	18	3%	56	4%	304	16%	92	10%
IND_B	211	21%	308	25%	198	14%	188	13%	8	1%	10	1%	36	5%	42	3%	30	2%	5	1%
IND_C	105	11%	178	14%	133	10%	136	10%	193	18%	32	4%	61	8%	113	8%	268	14%	129	13%
IND_D	148	15%	203	16%	138	10%	218	15%	313	29%	206	25%	179	25%	307	21%	284	15%	190	20%
IND_E	33	3%	48	4%	165	12%	203	14%	145	13%	171	21%	73	10%	150	10%	22	1%	34	4%
IND_F	115	12%	105	8%	201	15%	171	12%	75	7%	145	18%	78	11%	270	18%	266	14%	190	20%
IND_G	188	19%	191	15%	364	27%	266	19%	229	21%	152	19%	237	33%	458	31%	636	34%	291	30%
IND_H	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
IND_I	36	4%	42	3%	41	3%	88	6%	14	1%	32	4%	4	1%	27	2%	9	0%	26	3%
IND_J	51	5%	58	5%	66	5%	72	5%	55	5%	28	3%	33	5%	46	3%	42	2%	7	1%
Total	**994**	**100%**	**1254**	**100%**	**1371**	**100%**	**1417**	**100%**	**1093**	**100%**	**814**	**100%**	**719**	**100%**	**1469**	**100%**	**1861**	**100%**	**964**	**100%**

Further, MCs' subsidiaries geographical location is also investigated. The approximate distribution of the sampled countries MCs' subsidiaries are presented in Panel C. It shows that the geographic location of subsidiaries of the sampled countries MCs are not distributed evenly across continents around the world.

Panel C – MCs' Distribution across Continents

	Sampled Countries MCs' Distribution across Continents					
	North America	South America	Pacific Region	Europe	Asia	Africa
Australia	15%	6%	30%	10%	35%	12%
U.S.	10%	6%	8%	25%	46%	5%
Japan	25%	3%	20%	40%	12%	0%
U.K.	32%	14%	6%	30%	14%	4%
Malaysia	27%	6%	22%	32%	14%	2%

The distributions of Australian MCs subsidiaries locations are different from Malaysia. It shows that the Australian MCs subsidiaries' locations are heavily concentrated in Pacific region and Asia while most of the Malaysian MCs are located in Europe, North America and Pacific Region. Also, a high proportion of the countries in Pacific region and Asia are less developed nations and countries in Europe, North America are more developed. It is also visible that Malaysian MCs subsidiaries are located in more developed nations while Australian MCs are distributed in between developed and developing nations around the world. Finally, U.S. MCs are predominantly concentrated in Asia and Europe while Japanese MCs more crowded in Europe and Asia.

Given the distribution of the sampled countries MCs' subsidiaries have no strong uniformity, the variation in the results will be driven by the MCs' parent country as well as subsidiaries clustering effect in certain continents.

2.4 MEASUREMENT OF FIRM-SPECIFIC VARIABLES

This study employs several accounting proxies that are used to implement the hypothesis outlined in Chapter 3. All of these variables are winsorised at the 1st and 99th percentile to avoid the influence of extreme observations. Most of the variables are expressed as ratios. The details of the proxy measurements are as follows:

2.4.1 Long-term Debt

The dependent variable leverage is defined as the ratio of the book value of long-term debt to the book value of long-term debt and market value of equity (Burgman, 1996; Chkir & Cosset, 2001).[5]

[5] Equity is defined as market value of equity (number of common shares outstanding multiplied by the year end closing price). Book value of debt is defined as the debt written in the financial report. Many studies have used value of debt in measuring leverage (Friend & Lang, 1988; Titman & Wessels, 1988). Bowman (1980) argues that even if the market value of debt is a more accurate measure of leverage, the use of book value of debt is not expected to distort the leverage ratio.

$$Leverage\ (LTD\_MV_{i,t}) = \frac{(Long-term\ Debt_{i,t})}{(Long-term\ Debt_{i,t} + Market\ Value\ of\ Equity_{i,t})} \quad (1)$$

Alternative measures of debt ratios are also considered. Following Ferri and Jones (1975), Michaelas, Chittenden and Potziouris (1999) and Remmers et al. (1975) the following measurements are used:

$$Long-Term\ debt\ (LTD\_BV_{i,t}) = \frac{Long-term\ Debt_{i,t}}{Total\ Assets_{i,t}} \quad (2)$$

$$Total\ Debt\ (TOT\_LTD\_BV_{i,t}) = \frac{(Long\ term\ debt + total\ short\ term\ debt)_{i,t}}{Total\ Assets_{i,t}} \quad (3)$$

$$Short\ term\ debt\ (STD\_BV_{i,t}) = \frac{(Total\ short\ term\ debt)_{i,t}}{Total\ Assets_{i,t}} \quad (4)$$

Note that the first two alternative measurements are used in multivariate testing to capture the sensitivity of results due to different measurements, while short-term debt is used in univariate testing. Also, short-term debt is constructed such that it does not include accounts payable and accrued expenses, which may fluctuate seasonably and may not represent ongoing sources of short-term financing (Doukas & Pantzalis, 2003).

2.4.2 Dividend Payout

The dependent variable of dividend payout ratios is measured mainly in two different ways. The first method is calculated on the basis of cash dividend payments and the second method is applied to capture the impact of total dividend payments which is comprised of cash and share repurchase activity. Share repurchase is measured as change in treasury stocks. The measurements are taken mainly after Grullon and Michaely (2002). Also, Fama and French (2001) and Booth et al., (2001) also employed similar measurements:

$$Cash\ Dividend\ Payments\ (DIVC_{i,t}) = \frac{Cash\ Dividend_{i,t}}{Net\ Earnings_{i,t}} \tag{5}$$

$$Total\ Dividend\ Payments\ (DIVR_{i,t}) = \frac{Cash\ Dividend_{i,t} + Share\ repurchase_{i,t}}{Net\ Earnings_{i,t}} \tag{6}$$

An alternative measurement of dividend payout is also employed in the sensitivity chapter which is often used in dividend research:

$$Cash\ Dividend\ Payments\ (DIVCTA_{i,t}) = \frac{Cash\ Dividend_{i,t}}{Total\ Asset_{i,t}} \tag{7}$$

2.4.3 Agency Cost

A common measure of agency cost is calculated using research and development plus advertising expense scaled by sales (Myers, 1977). Due to a lack of advertising expense data and research and development data being available, this thesis instead used the direct agency proxy suggested by Alli, Khan and Ramirez (1993) where agency cost is calculated by dispersion of shareholders:

$$Agency\ Cost\ (AGC_{i,t}) = \frac{Number\ of\ Shareholders_{i,t}}{Total\ Outstanding\ Shares_{i,t}} \tag{8}$$

2.4.4 Free Cash Flow

The measure of FCF used is that defined by Lehn and Poulsen (1989) and standardised by total asset.

$$Free\ Cash\ Flows\ (FCF_{i,t}) = \frac{EBIT_{i,t} + DEP_{i,t} + AMO_{i,t} - TAX_{i,t} - DIV_{i,t} - INT_{i,t}}{Total\ Asset_{i,t}} \tag{9}$$

Where:

EBIT = earnings before interest and tax and abnormal return

DEP = depreciation expense

AMO = amortization reported separately

TAX = total tax paid

DIV = total dividends paid on ordinary and preference shares

INT = net interest expense

Lehn and Poulsen (1989) argue that their cash flow measure captures post-tax cash flow that is not distributed to claimants.

2.4.5 Growth

The firm's growth is calculated as the ratio of market value of equity to book value of assets. This proxy has recently been used by Grinstein and Michaely (2005):

$$Growth\ (GROW\_MB_{i,t}) = \frac{Market\ Value\ of\ Equity_{i,t}}{Total\ Assets_{i,t}} \tag{10}$$

The firm's growth is also calculated as the annual percentage change in total assets for last three years (Jensen, Solberg & Zorn, 1992 & Mehran, 1992). The growth in assets is a direct measure of current investment and, if investment is persistent, it is also a proxy for expected investment (Fama & French, 2002).

$$Growth\ (GROW\_PT_{i,t}) = \frac{\Delta Total\ Assets_{i,t}}{Total\ Assets_{i,t}} = \frac{\left(Total\ Assets_{i,t} - Total\ Assets_{i,t-1}\right)}{Assets_{i,t}} \tag{11}$$

2.4.6 Non-debt Tax Shields

Following Bradley, Jarrell and Kim (1984), Titman and Wessels (1988), Barton, Hill and Sundaram (1989) depreciation charges are used to indicate non-debt tax shields scaled with total assets:

$$Non-debt\ Tax\ Shields\ (NDTS_{i,t}) = \frac{Total\ Annual\ Depreciation\ Expense_{i,t}}{Total\ Assets_{i,t}} \quad (12)$$

2.4.7 Profitability

The profitability variable is used to capture past profitability of a firm. The past profitability measure is motivated by the firm's pecking order preferences for raising capital (Myers, 1984). There are numerous methods available to measure profitability. The variable chosen for this study follows Doukas and Pantzalis (2003)[6]:

$$Profitability\ (PROF_{i,t}) = \sum_{s=t-3}^{t} \frac{Net\ Income}{Total\ Sales} \Big/ 3 \quad (13)$$

2.4.8 Size

Most studies suggest that firm size is one important factor which affects a firm's debt policy (Scott & Martin, 1975; Ferri & Jones, 1979; Agrawal & Nagarajan, 1990). Total assets are considered to be a better proxy for this size effect. The size measure used in this study is as follows:[7]

$$SIZE_{i,t} = Ln(Total\ Assets_{i,t}) \quad (14)$$

2.4.9 Collateral Value of Assets

This study uses the ratio of fixed assets to total assets (Chittenden, Hall & Hutchinson, 1996; Friend & Lang, 1988):

$$Collateral\ Value\ of\ Assets\ (CVA_{i,t}) = \frac{Fixed\ Assets_{i,t}}{Total\ Assets_{i,t}} \quad (15)$$

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[6] The use of earnings before interest and taxes prevents the mode of financing from affecting the firms' profitability. The measure of profitability is a lagged variable because it is past profitability that should be the determinant of the current capital structure of the firm (Titman & Wessels, 1988).

[7] Other proxies for size variable include total revenue and market capitalisation (Tosi et al., 2000). These will be used in the sensitivity analysis.

2.4.10 Business Risk

The proxy for business risk is calculated after Bishop et al. (2004):

$$BETA_{i,t} = De-geared\ equity\ beta = \frac{\beta_L}{\left(1+\frac{D_{i,t}(1-t_c)}{E_{i,t}}\right)} \tag{16}$$

Where, β_L = OLS regression on previous 52 weeks of returns with the market: $R_{i,w} = \alpha + \beta_L(R_{m,w}) + \varepsilon_{i,w}$ and $R_{i,w} = ln(P_{i,w}/P_{i,w-1})$. Where $P_{i,w}$ is the stock price at week w. The market index ($R_{m,w}$) used was according to the different stocks total index (e.g. Australia: All Ordinaries Index, US: Dow Jones U.S. total market, JP: Nikkei all stock, U.K.: FTSE all shares index, and Malaysia: KLSE Composite index).

$D_{i,t}$ = book value of total debt at end of year t;

$E_{i,t}$ = market capitalization of ordinary equity at end of year t; and

t_c = corporate tax rate.

2.4.11 Stock Return

We use the capital asset pricing model to proxy for stock return and this method is used in Black and Scholes (1974):

$$Stock\ Return\ (SR_{i,t}) = E(R_i) = R_f + \beta_i[E(R_m) - R_f]$$

Where, $E(R_i)$ is the expected return of stock i, R_f is the risk free rate, β_i is the firm-specific risk, $E(R_m)$ is the expected return on market. (17)

2.4.12 Bankruptcy Costs or Cash Flow Variability

To calculate bankruptcy costs, several researchers, including Bradley, Jarrell and Kim (1984), Chaplinsky (1984) and Lee and Kwok (1988) have used the standard deviation of the first difference in earnings before interest and taxes (EBIT) for five years scaled by the mean value of the firm's total assets, and we use similar measurement for this study with a slight modification of scaling by interest expense. The modification is necessary since dividing by total assets for too many variables might introduce contemporaneous correlation with other variables. This measure is also known as cash flow variability *($CFV_{i,t}$)*.

$$\begin{aligned}&Bankruptcy\ Costs(BPTCY_{i,t})\\&or\ Cash\ Flow\ Variability\ (CFV_{i,t}) = \frac{Standard\ Deviation\ of\ First\ Difference\ in\ EBIT_{i,t}}{Interest\ Expenses_{i,t}}\end{aligned} \tag{18}$$

To examine the robustness of the results to the volatility measure utilized, Z-score (Altman, 1968) is used to capture bankruptcy cost for sensitivity. It combines several financial ratios to provide a single measure of overall financial performance in terms of its stability so that in the near future the firm will not face any financial distress such as bankruptcy costs. Z-score is calculated as follows:

$$1.2 * \left(\frac{\frac{Current\ Asset}{Current\ Liabilities}}{Total\ Asset} \right) + 1.4 * \left(\frac{Retained\ Earnings}{Total\ Asset} \right) + 3.3 * \left(\frac{EBIT}{Total\ Asset} \right)$$
$$+ 0.6 * \left(\frac{Market\ Value\ of\ Equity}{Book\ Value\ of\ Total\ Liability} \right) + \left(\frac{Sales}{Total\ Asset} \right) \tag{19}$$

2.4.13 Age

The variable for firms' age is measured following Michaelas, Chittenden and Poutziouris (1999) amongst others.

$$AGE_{i,t} = ln\ (age\ of\ firm\ i,\ in\ years\ from\ date\ of\ incorporation). \tag{20}$$

2.4.14 Average Tax Rate

ATR is firm i's effective corporate tax rate, measured as the proportion of tax paid to pre-tax income (Twite, 2001):

$$ATR_{i,t} = \frac{Tax\ paid_{i,t}}{Pre\text{-}tax\ income_{i,t}} \tag{21}$$

2.4.15 Financial Slack

The proxy for financial slack is calculated after Ali, Khan and Ramirez (1993):

$$SLACK_{i,t} = \frac{Cash + Marketable\ securities_{i,t}}{Market\ value\ of\ equity_{i,t}} \tag{22}$$

2.4.16 Tax Clientele

The proxy tax clientele is calculated after Ali, Khan and Ramirez (1993):

$$TAX\_CLTL_{i,t} = \frac{Number\ of\ common\ shares\ outstanding_{i,t}\ by\ institutional\ shareholders}{Number\ of\ total\ shares\ outstanding_{i,t}} \tag{23}$$

2.5 Measurement of International Environmental Variables

2.5.1 Diversification

Empirical measures of the multinationality require a precise specification of the extent of the MCs' transnational network to measure the degree of multinationality. We address this omission by defining multinationality after Allen and Pantzalis (1996) by considering the 'breadth' (number of foreign countries in which the MC has operations). Previous studies have applied a number of different measurements for this construct. The most commonly used measures are the ratio of foreign sales to total sales (Grant, 1987; Tallman and Li, 1996), the ratio of foreign assets to total assets (Daniels & Bracker, 1989; Ramaswamy, Galen & William, 1996), and the number of countries in which a firm has subsidiaries (Tallman & Li, 1996). Each of these functional measurements has its own merits and captures different facets of foreign involvement. Following Tallman and Li (1996) and Doukas and Pantzalis (2003), this thesis measures diversification by the number of subsidiaries operating overseas. However, one important issue involved with this measurement is that a firm could have a high degree of international involvement, and yet all of its foreign investment could be in a single high-risk country. Such a firm would actually be expected to have more and not less business risk due to its international activities. Further, the number of foreign countries in which a firm has subsidiaries captures the dispersion element encompassing locational costs and benefits of capital structure decisions. It could be argued that the magnitude of geographical dispersion involves a variety of elements and could be viewed as a multidimensional construct (Sullivan, 1994), which meets the aim of this analysis.

$$DIVER_{i,t} = ln(Total\ numbers\ of\ local\ and\ overseas\ subsidiaries) \tag{24}$$

2.5.2 Foreign Exchange Risk

Exchange rate movements affect both the cash flows of a firm's operations and the discount rate employed to value these cash flows (Bartov, Bodnar & Kaul, 1996).[8] Foreign production and sales are two important determinants of the exchange rate exposure for any MC, because exchange rate fluctuations directly impact on the revenues and production costs of the firm through these two channels. This study measures the concentrations of foreign subsidiaries in foreign countries through foreign sales. This study proxys foreign exchange risk as follows (Wright, Madura & Wiant, 2002):

$$Foreign\ Exchange\ Risk\ (FX_{i,t}) = \frac{Total\ Foreign\ Sales_{i,t}}{Total\ Sales_{i,t}} \tag{25}$$

2.5.3 Political Risk

This thesis constructs political risk (*PR*) quite differently than Burgman (1996). His political risk measurement is based on the ratio of the number of low political risk countries to the total number of countries in which a firm operates. However, this measurement suffers from some

[8] Bartov, Madura and Wiant (1996) show that there is an increase in the variability of equity returns following the period of increased exchange-rate variability. The results suggest that the increase in exchange-rate fluctuations is an indication of an increase in the riskiness of the MCs' cash flows.

drawbacks.[9] Therefore this study follows a different approach. The measurement is explained with notational signs as follows:

Let C be the sample of companies and R be the set of different countries from which the companies in the sample operate. Let *Ic,r* be the revenue of company c coming from a particular country, r. The sum of revenues for company c from different countries is Sigma *Ic,i*. Pc,r is the proportion of revenue from a particular country relative to the total revenue of company c. Notationally this is as follows:

$$P_{c,r} = \frac{I_{c,r}}{\sum_{i \in R} I_{c,i}} \tag{26}$$

For each country in which a company operates, a political risk rating is obtained from the *Handbook of Country and Political Risk Analysis* (Llewellyn, 2001). This is denoted as lambda. The political risk rating is then multiplied by the proportion of revenue from that particular country relative to the total revenue of the company. This provides a measure of the political risk faced by an MC. Notationally this is as follows:

$$\gamma_c = \sum_{i \in R} \lambda_i P_{c,i} = \frac{\sum_{i \in R} \lambda_i I_{c,i}}{\sum_{i \in R} I_{c,i}}$$

In addition, about 10% of the MCs' sample across five countries were filtered into five groups after the five continents, namely, Asia, North America, South America, Europe and Africa. It was important to segregate them in this manner because few companies' segmental information was based on continent even though in the footnotes the companies mention the country's name but do not provide revenues accordingly. A filtering process was followed to segregate the companies into five groups and then each of those segmental revenues was value-weighted against total consolidated revenues. Then the weighted average rating was exposed to the proportion of foreign revenues.

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[9] The use of this measure has three disadvantages. Firstly, the choice of the top 20 countries is somewhat arbitrary. Secondly, this measure does not account for the relative involvement of the firm in each foreign country. Thirdly, *Euromoney* does not really provide political risk ratings. Indeed, this magazine establishes country creditworthiness ratings which include three broad categories of factors: analytical indicators (40%) made up of economic risk (10%), political risk (15%) and economic indicators (15%); credit indicators (20%) and market indicators (40%). Thus political risk directly accounts for 15% of the score assigned to each country.

2.6 MEASUREMENT OF MACRO VARIABLES

2.6.1 Country

Zero-one dummy variables identifying the home country of a firm are used for corporations from Japan, U.K., U.S., Australia and Malaysia.

$$Country\_Dummy\ (COUNTRY_{i,t}) = 0\ or\ 1 \tag{27}$$

2.6.2 Industry

To control for industry-specific effects on firms' capital structure choice, a zero-one dummy is employed to separate 10 industries in our analysis. To be consistent in industry effect on capital structure across countries, the Dow Jones Global Indexes (DJGI) industry classification is used to separate ten industry groups. The DJGI classification is consistent and provides enough observations across sample countries for DCs and MCs. Also, the DJGI classification contains 10 main types of industry which makes the analysis easier, since having too many categories of industry classification distorts the adequate sample size within each industry subgroup.

$$Industry\_Dummy\ (IND_{i,t}) = 1\ if\ the\ firm\ falls\ within\ a\ specific\ industry,\ otherwise\ 0 \tag{28}$$

2.6.3 Taxation System

Zero-one dummy variables identifying the home country of a firm taxation (e.g. imputation vs. classical) policy are used for corporations from Japan, U.K., U.S., Australia and Malaysia.

Taxation System (*Imputation_Tax*$_{i,t}$) = *1 if the firm operates within imputation tax regime, otherwise 0.* (29)

2.6.4 Legal System

Zero-one dummy variables identifying the home country of a firm's legal regimes (e.g. imputation vs. classical) policy are used for corporations from Japan, U.K., U.S., Australia and Malaysia.

Legal System (*Common_Law*) = *1 if the firm operates within common law legal regime, otherwise 0.* (29)

2.6.5 Time

Zero-one dummy variables identify the individual year effect on firms (DCs and MCs) from 1995 to 2004 across Japan, U.K., U.S., Australia and Malaysia.

Time (*Yr*) = *1 if the firm operates in a certain year, otherwise 0.* (30)

2.7 SAMPLE CHARACTERISTICS

Before examining the determinants of capital structure and dividends for DCs and MCs through regression analysis, it is worthwhile to investigate the presence of multicollinearity among independent variables.

2.7.1 Descriptive Statistics

Summary statistics relating to the dependent variables and explanatory variables across four essays are presented in Table 2.4. Table 2.4 shows basic sample summary statistics. It shows that, on average, the long-term market value of debt for the DCs range between 0.06 (U.K.) to 0.47 (U.S.) with a standard deviation of 0.18 and 0.36 respectively. Similarly, the average long-term market debt ratio of MCs across countries ranges between 0.07 (Australia) to 0.34 (U.S.) with a standard deviation of 0.18 and 0.33 respectively. More generally, the MCs in Australia, U.K. and Malaysia tend to have higher leverage ratios than their DCs counterparts across developed and semi-developed countries, especially in the chosen sample countries. This result is consistent regardless of long-term debt measurements across countries. However, while the magnitude of average short-term debt ratios varies across countries, it shows that the magnitude stays similar across DCs and MCs.

The average ratios of dividend-related variables, for example cash dividends (both scaled by net profit and total asset) and share repurchase type of dividends payments, show a similar pattern to debt as far as difference goes between DCs' and MCs' dividend behaviour which has been discussed earlier. However, interestingly, the results show that the lowest dividend paying country is Malaysia (both DCs and MCs) relative to the other four sample countries, and the rest of the sample countries' DCs and MCs dividend paying ratios are within the range of 30-35% with an exception of Australian MCs which appear to pay the highest dividend relative to the other four countries' MCs (0.43 vs 0.28, 0.29, 0.37, 0.18 across U.S., Japan, U.K. and Malaysia respectively) in the sample.

On average, U.S. MCs are relatively more diversified across the sampled countries as the mean subsidiaries within the U.K. MCs sample have 21 subsidiaries.[10] Not surprisingly, the U.K.'s MCs are more exposed to foreign exchange risk (0.38) and U.S. MCs are in second order rank in terms of geographical dispersion and foreign exposure through foreign sales. Interestingly, although U.S. and Australian DCs are more diversified than the other three sample countries, on average U.K. DCs are more concentrated in foreign markets through foreign sales (0.17).

On average the Australian, U.S., Japan and U.K. MCs have similar political risk (*PR*) exposure as opposed to Malaysia (83.68, 81.45, 81.64, 83.71 vs. 74.01), implying that Malaysian MCs are more prone to political risk than the developed countries' MCs.

The average cash flow variation proxy that stands for bankruptcy risk appears to be similar for DCs and MCs across countries (e.g. both range 0.02 to 0.03) while the beta proxied for firm-specific risks seem strong in U.S. MCs and DCs relative to the other four sample countries (0.37

[10] Since the diversification is measured as the natural logarithm of total subsidiaries, it is an easier interpretation by taking antilog (exponential of 3.03) to report the actual average number of subsidiaries.

and 0.29) as opposed to the MCs and DCs of Australia (0.06 and 0.08), Japan (0.14 and 0.19), U.K. (0.08 and 0.14) and Malaysia (0.07 and 0.08). This indicates that firms that originated in U.S. are riskier than the firms in the other four sample countries.

The firm-specific risk (*BETA*) shows that MCs in all sample countries have higher risks than DCs, suggesting MCs in any countries are inherently riskier than DCs. The highest firm-specific risk is observed in U.S. MCs (0.77) while the lowest firm-specific risk-bearing country is Australian MCs and this is because the MCs are usually mining companies which inherently are riskier than any other firms across industries.

Altman's Z-score in Japanese DCs is slightly less than in MCs (4.57 vs. 5.48). However, the rest of the sample countries show the opposite with the MCs' Altman's Z-scores being slightly larger than that of the DCs. U.K. exhibits almost identical average tax ratio (*ATR*) for both MCs and DCs (0.39 vs. 0.39). Noticeably, Australian, Japanese and Malaysian DCs pay higher average tax than the MCs counterparts. On average, non-debt tax shields (*NDTS*) seems to produce a relatively similar impact on both MCs and DCs across countries regardless of taxation policy (e.g. classical tax system vs. imputation tax system). Meanwhile, the tax clientele variable shows that on average the Japanese and U.S. firms have higher ratio of tax clientele-based investors relative to other sample countries; however, MCs in U.S. have more tax clientele based investors relative to U.S. DCs (0.48 vs. 0.31) and for Japanese firms the opposite holds (0.65 for DCs and 0.38 for MCs).

On average, MCs across Australia, U.S., Japan, U.K. and Malaysia are more profitable (*PROF*) than DCs (0.02, 0.02, 0.02, 0.03 and 0.03 vs. 0.01, 0.02, 0.01, 0.02, 0.01 respectively). Similarly, agency cost of debt is higher for MCs than DCs across all sample countries.

On average the free cash flow (*FCF*) for DCs varies from 2.010 (Malaysia) to 8.493 (US). Further, U.S. MCs hold the highest *FCF* as indicated by the maximum value of *FCF* 12.881. On average, Malaysian MCs have a relatively volatile growth rate which is indicated by the standard deviation of 0.370. The two measures of growth variables indicate a mix of results across DCs and MCs.

It is quite interesting to find that Japanese DCs are larger in size (measured as natural logarithm of total assets (*SIZE*)) compared to Japanese MCs (9.99 vs. 9.65) while the other four countries' MCs are larger than DCs. Similar results hold when size is measures as natural logarithm of total revenues. The collateral value of asset (*CVA*) also show that MCs are the firms which hold larger fixed assets to total assets compared to DCs across all sample countries except Japan and U.K.. Finally, the age of the firms show that MCs are much more mature in age (*AGE*) than DCs.

In summary, most countries' debt level and dividend payout ratios determinants across DCs and MCs have quite dissimilar average ratios.

Table 2.4
Descriptive statistics for 5 sampled countries DCs and MCs dependent and independent variables over 10 years

This table reports descriptive statistics of sample characteristics for DCs and MCs across five countries. Alphabetical notations have been used for easier reporting and reading purposes. The variables are: A - The dependent variable *LTD* (long-term debt ratio) is calculated using long-term debt to long-term debt plus market value of equity. B - The dependent variable is measured as total long-term debt to total assets which is indicated by *LTDTA*. C - The dependent variable is measured as total debt to total assets which is indicated by *TDA*. D – *STD*-Short-term debt (e.g. less than 12 months: debt in current liabilities) is scaled by total assets. E - $DIVC_{i,t}$ (cash payout ratios) is calculated using cash dividend paid to net earnings. F- $SR_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. G - $DIVR_{i,t}$ (cash and share repurchase dividend payout ratios) is calculated as cash plus change in treasury stock scaled by net earnings. H - The dependent variables has been employed $DIVCTA_{i,t}$ (cash payout ratios) is calculated using cash dividend paid to total assets. I - $DIVER_{i,t}$ (diversification) is the total number of subsidiaries that any firm has within their domicile country and have in overseas. J - $FX_{i,t}$ (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. K - $PR_{i,t}$ (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. L - $CFV_{i,t}$ (cash flow variation) or $BPTCY_{i,t}$ (Bankruptcy costs) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. M - $BETA_{i,t}$ - *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index – market model. N - Alman's Z score.[11] O - $ATR_{i,t}$ (average tax ratios) is calculated as total tax paid per annum scaled by net profit. P – *NDTS* (Non-Debt Tax Shield) is calculated by total annual depreciation expense over total assets. Q - $TAX\_CLTL_{i,t}$ (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. R - *PROF* (Profitability) is the average ratio of net income change over total sales for the last three years. S - $AGC_{i,t}$ (agency cost) is the natural logarithm of total shareholders. T - $FCF_{i,t}$ (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortisation plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. U - $GROW\_PT_{i,t}$ (past growth) which is measured as the change in total assets over total assets. V - $GROW\_MB_{i,t}$ (market value of equity to book value of asset) which is measured as market value of equity to book value of asset. W - $SIZE_{i,t}$ is the natural logarithm of total asset. X - $SIZE_{i,t}$ is the natural logarithm of total revenue. Y - $CVA_{i,t}$ (collateral value of assets) is the ratio of fixed assets to total assets. Z - $AGE_{i,t}$ is the natural logarithm of the age of the firm in years from date of incorporation.

AU	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Mean - DCs	0.07	0.07	0.11	0.05	0.35	0.83	0.00	0.35	2.05	0.11	84.07	0.03	0.06	5.73	0.31	0.04	0.05	0.01	2.05	7.55	0.08	1.61	5.18	4.99	0.38	2.90
Mean - MCs	0.07	0.09	0.12	0.05	0.43	0.51	0.01	0.44	2.58	0.31	83.68	0.02	0.08	4.24	0.30	0.05	0.06	0.02	2.58	5.22	0.07	2.13	6.21	6.09	0.36	3.27
Median - DCs	0.00	0.00	0.01	0.01	0.29	0.00	0.00	0.30	2.48	0.00	85.84	0.02	0.05	2.46	0.33	0.03	0.02	0.04	2.48	4.04	0.08	1.06	5.06	5.23	0.34	2.89
Median - MCs	0.00	0.00	0.05	0.02	0.48	0.66	0.00	0.49	3.04	0.21	84.69	0.02	0.07	2.54	0.39	0.04	0.04	0.04	3.04	3.00	0.07	1.27	6.21	6.17	0.34	3.30
Maximum - DCs	1.00	0.99	0.99	0.82	1.00	0.95	0.86	1.06	3.97	1.00	89.93	0.21	0.72	9.65	0.73	0.31	0.79	2.91	3.97	13.01	1.00	3.02	10.53	10.24	0.97	5.12
Maximum - MCs	0.99	0.95	0.95	0.95	1.00	0.97	1.00	1.98	3.58	1.00	93.50	0.15	0.68	7.24	0.80	0.54	0.49	0.75	3.58	19.02	1.00	4.59	10.55	10.38	0.95	5.00
Minimum - DCs	0.00	0.00	0.00	0.00	0.00	0.00	0.0.00	0.00	0.00	0.00	46.04	0.00	-0.16	1.45	0.00	0.00	0.00	-5.84	0.00	0.88	-1.74	0.01	1.36	3.73	0.00	0.00
Minimum - MCs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.12	0.00	-0.23	0.27	0.00	0.00	0.00	-1.94	0.00	0.26	-0.13	0.04	0.21	2.23	0.00	0.00
Std. Dev. - DCs	0.18	0.14	0.17	0.09	0.37	2.00	0.03	0.37	1.20	0.24	4.91	0.02	0.10	3.71	0.76	0.05	0.19	1.52	1.20	9.85	1.58	1.47	1.84	2.05	0.26	1.03
Std. Dev. - MCs	0.18	0.15	0.16	0.08	0.36	3.04	0.07	0.37	1.08	0.31	4.20	0.02	0.10	4.13	0.15	0.04	0.09	0.48	1.08	12.38	0.57	2.63	1.97	2.09	0.22	0.99

[11] $$1.2 * \left(\frac{\frac{Current\ Asset}{Current\ Liabilities}}{Total\ Asset} \right) + 1.4 * \left(\frac{Retained\ Earnings}{Total\ Asset} \right) + 3.3 * \left(\frac{EBIT}{Total\ Asset} \right) + 0.6 * \left(\frac{Market\ Value\ of\ Equity}{Book\ Value\ of\ Total\ Liability} \right) + \left(\frac{Sales}{Total\ Asset} \right)$$

US																										
Mean - DCs	0.47	0.29	0.32	0.03	0.30	0.69	0.23	0.53	2.83	0.09	81.12	0.03	0.29	9.92	0.53	0.04	0.31	0.02	2.83	8.49	0.10	2.77	7.98	7.80	0.44	2.88
Mean - MCs	0.34	0.23	0.26	0.03	0.28	0.45	0.37	0.65	3.03	0.36	81.45	0.02	0.37	7.26	0.92	0.05	0.48	0.05	3.03	10.12	-1.97	5.66	8.98	8.81	0.32	3.27
Median - DCs	0.43	0.29	0.32	0.00	0.18	0.73	0.00	0.43	3.09	0.00	80.50	0.02	0.29	2.29	0.58	0.04	0.13	0.04	3.09	5.13	0.06	1.22	8.46	8.20	0.46	2.94
Median - MCs	0.20	0.22	0.25	0.01	0.22	0.14	0.02	0.53	3.18	0.31	81.76	0.02	0.38	2.87	0.52	0.04	0.10	0.05	3.18	6.12	0.07	1.57	9.07	8.94	0.27	3.18
Maximum - DCs	1.00	0.99	1.00	0.58	1.00	0.75	1.00	1.98	3.91	1.00	88.00	0.22	0.72	7.27	0.79	0.84	0.79	0.61	3.91	17.35	1.00	4.42	11.70	12.56	0.93	4.96
Maximum - MCs	1.00	0.95	0.92	0.38	1.00	0.88	1..00	1.98	3.89	1.00	90.74	0.46	0.77	10.23	0.50	0.40	0.90	2.03	3.89	18.78	1.00	2.37	13.53	12.48	0.93	4.80
Minimum - DCs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.82	63.15	0.01	-0.10	0.48	0.00	0.00	0.00	-5.78	0.00	0.65	-1.05	0.06	0.85	6.91	0.00	0.00
Minimum - MCs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.06	52.65	0.00	-0.16	0.41	0.00	0.00	0.00	-0.84	0.00	0.45	-1.51	0.19	1.18	0.99	0.00	0.00
Std. Dev. - DCs	0.36	0.18	0.19	0.06	0.33	2.21	0.38	0.51	0.84	0.26	4.11	0.02	0.17	5.25	0.21	0.04	0.44	0.21	0.84	9.28	0.42	1.65	1.83	1.89	0.24	0.96
Std. Dev. - MCs	0.33	0.16	0.16	0.05	0.29	1.60	0.44	0.59	0.59	0.30	3.58	0.02	0.18	1.14	0.49	0.03	0.53	0.09	0.59	12.88	48.29	1.69	1.36	1.38	0.21	0.97
JP	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**
Mean - DCs	0.26	0.21	0.33	0.12	0.33	0.54	0.09	0.42	0.37	0.02	80.25	0.02	0.14	4.57	0.48	0.04	0.65	0.01	1.43	2.04	-1.49	1.56	9.99	9.80	0.39	3.95
Mean - MCs	0.18	0.19	0.31	0.12	0.29	0.11	0.09	0.38	2.60	0.15	81.64	0.02	0.19	5.48	0.32	0.04	0.38	0.02	2.05	2.06	-2.69	2.55	9.65	9.52	0.30	4.14
Median - DCs	0.01	0.19	0.31	0.09	0.25	0.12	0.00	0.30	0.00	0.00	79.35	0.02	0.13	3.10	0.82	0.03	0.08	0.01	1.61	0.03	0.03	1.17	10.72	10.53	0.36	3.99
Median - MCs	0.00	0.19	0.31	0.10	0.23	0.96	0.00	0.28	2.77	0.10	81.87	0.02	0.18	5.28	0.76	0.04	0.07	0.02	2.30	0.06	0.01	1.90	10.33	9.91	0.30	4.14
Maximum - DCs	1.00	0.69	0.92	0.72	0.99	0.97	1.00	1.98	4.53	0.95	87.00	0.20	0.58	6.23	0.62	0.28	0.62	0.51	3.43	3.86	0.20	4.89	14.09	14.31	0.94	4.78
Maximum - MCs	1.00	0.63	0.85	0.63	1.00	0.96	1.00	1.97	5.77	1.00	87.12	0.07	0.58	5.52	0.56	0.14	0.41	0.93	3.33	5.21	0.30	2.35	14.17	14.77	0.90	5.02
Minimum - DCs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.47	0.00	-0.14	1.68	0.00	0.00	0.00	-2.00	0.00	0.43	-1.92	0.24	4.04	3.08	0.00	0.00
Minimum - MCs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.94	0.00	-0.12	0.91	0.00	0.00	0.00	-0.51	0.00	0.09	-1.16	0.56	4.72	4.36	0.04	2.30
Std. Dev. - DCs	0.37	0.18	0.24	0.13	0.31	1.34	0.23	0.42	0.93	0.07	3.87	0.01	0.11	3.23	0.31	0.03	0.22	0.06	0.97	0.10	1.85	0.53	2.46	2.55	0.21	0.48
Std. Dev. - MCs	0.31	0.12	0.19	0.11	0.27	0.90	0.23	0.38	1.53	0.18	3.31	0.01	0.11	2.93	0.63	0.02	0.18	0.04	0.80	0.03	1.20	1.27	2.67	2.67	0.13	0.33
UK																										
Mean - DCs	0.06	0.08	0.12	0.06	0.31	0.49	0.00	0.31	1.80	0.17	85.11	0.02	0.08	6.68	0.39	0.05	0.01	0.02	1.82	4.35	0.13	1.94	4.59	4.53	0.38	2.98
Mean - MCs	0.10	0.09	0.13	0.06	0.37	0.29	0.01	0.38	3.05	0.43	83.71	0.02	0.14	4.21	0.39	0.05	0.02	0.03	2.72	5.04	-0.48	3.82	5.55	5.55	0.32	3.13
Median - DCs	0.00	0.00	0.03	0.02	0.29	0.38	0.00	0.29	1.79	0.00	86.18	0.02	0.07	3.25	0.35	0.04	0.00	0.05	1.79	3.07	0.09	1.16	4.39	4.42	0.35	2.94
Median - MCs	0.00	0.01	0.06	0.03	0.37	0.79	0.00	0.37	3.09	0.39	84.60	0.02	0.11	3.15	0.41	0.04	0.00	0.05	3.14	2.12	0.06	1.42	5.44	5.78	0.27	3.09
Maximum - DCs	0.99	0.99	0.99	0.96	1.00	0.95	0.94	1.88	4.94	1.00	97.00	0.14	0.54	6.98	0.36	0.40	0.79	1.22	3.87	0.39	0.72	2.27	10.08	9.81	1.00	7.51
Maximum - MCs	0.99	0.86	0.91	0.88	1.00	0.96	0.99	1.96	6.82	1.00	90.25	0.34	0.63	4.58	0.79	0.52	0.55	1.83	3.95	0.18	0.85	4.40	11.94	10.61	1.03	5.02
Minimum - DCs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.00	0.00	-0.18	0.82	0.00	0.20	0.00	-5.49	0.00	0.29	-1.66	0.06	0.96	3.51	0.00	0.00
Minimum - MCs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.05	0.00	-0.20	0.55	0.00	0.01	0.00	-6.37	0.00	0.42	-3.00	0.15	3.00	6.91	0.00	0.00
Std. Dev. - DCs	0.18	0.15	0.17	0.11	0.29	2.68	0.03	0.29	1.19	0.29	4.64	0.02	0.10	2.08	0.16	0.08	0.06	0.34	1.26	5.10	0.45	1.98	1.82	2.11	0.28	1.04

Std. Dev. - MCs	0.22	0.14	0.16	0.08	0.32	2.49	0.06	0.32	1.02	0.35	4.29	0.02	0.13	3.95	0.15	0.10	0.11	0.36	1.04	8.28	1.58	2.83	2.08	2.22	0.23	1.04
ML																										
Mean - DCs	0.24	0.12	0.25	0.12	0.17	0.19	0.01	0.19	0.16	0.06	73.10	0.03	0.07	6.60	0.45	0.03	0.04	0.01	1.06	2.01	0.11	1.78	5.83	5.15	0.40	2.71
Mean - MCs	0.33	0.15	0.26	0.11	0.18	0.45	0.01	0.19	1.92	0.20	74.01	0.03	0.08	3.46	0.32	0.03	0.02	0.03	2.01	3.05	0.12	1.50	6.98	6.34	0.40	3.02
Median - DCs	0.06	0.06	0.22	0.07	0.00	0.39	0.00	0.01	0.00	0.00	72.51	0.03	0.07	2.20	0.22	0.03	0.02	0.03	0.69	1.05	0.06	1.04	5.74	5.10	0.40	2.94
Median - MCs	0.15	0.12	0.24	0.06	0.07	0.85	0.00	0.09	1.61	0.03	74.99	0.03	0.08	2.24	0.23	0.02	0.01	0.04	2.19	0.05	0.05	1.06	7.03	6.36	0.38	3.14
Maximum - DCs	1.00	0.99	0.99	0.98	1.00	0.87	0.99	1.87	3.64	1.00	90.00	0.20	0.30	8.56	0.73	0.60	0.39	1.68	3.58	9.56	0.68	2.52	11.06	9.78	1.00	7.52
Maximum - MCs	1.00	0.78	0.83	0.61	1.00	0.92	0.94	1.11	4.75	1.00	87.50	0.10	0.29	4.43	0.51	0.12	0.15	0.78	3.66	6.31	0.96	3.75	10.55	9.61	0.94	4.43
Minimum - DCs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.59	0.00	-0.19	1.59	0.00	0.00	0.00	-3.34	0.00	0.04	-0.26	0.11	0.82	3.65	0.00	0.00
Minimum - MCs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.83	0.00	-0.10	1.48	0.00	0.00	0.00	-0.50	0.00	0.01	-0.16	0.44	3.87	3.20	0.00	0.00
Std. Dev. - DCs	0.33	0.16	0.22	0.15	0.25	1.20	0.09	0.27	0.57	0.18	4.50	0.02	0.07	2.55	0.56	0.03	0.10	0.51	0.99	3.54	0.69	0.56	1.34	1.46	0.23	0.98
Std. Dev. - MCs	0.37	0.15	0.19	0.13	0.23	1.43	0.07	0.25	1.38	0.28	4.79	0.02	0.07	1.51	0.14	0.02	0.03	0.09	1.08	3.01	0.32	0.50	1.53	1.47	0.21	0.70

2.8 ROBUSTNESS OF DATA

2.8.1 Detection of Multicollinearity

The first step in multivariate analysis is studying the correlations among the variables. Correlations among the variables are used as proxies for the determinants of debt ratios and dividend payout ratios. Appendix 1 presents the Pearson's correlation coefficients along with their significance level among the various measurements of dependent and independent variables that will be employed in the subsequent four chapters. Inspection of the correlation matrix presented in Appendix 1 reveals nothing that leads us to be concerned about multicollinearity between variables included in the subsequent chapters.

2.8.2 Detection of Outliers

Each of the above defined variables has been plotted against time and outlier, and influential observations were detected. Each variable was ranked low to high and a 3 times stronger (e.g. Frank and Goyal (2004) only winsorise 0.50% from each tail which as a rule of thumb appears poor winsorising procedure) winsorising process is applied in both tails of distribution. This serves to replace outliers and the most extremely misreported data.

2.9 SUMMARY AND CONCLUSION

This chapter has featured the data collection, proxy measurement and variable construction procedures. This included discussion of the sampling period, sample selection and filtering process and recognition of all the data sources. The chapter concluded with a brief summary of sample characteristics for all the possible proxies. The following chapter will explain the literature review, developed hypothesis, and methodology used to analyse the data for capital structure and dividend payout ratios across five sample countries.

- 3-
THE DYNAMICS OF AUSTRALIAN MCs & DCs CAPITAL STRUCTURE

3.1 INTRODUCTION

Corporate capital structure remains a controversial issue in modern corporate finance. Since the seminal work by Modigliani and Miller (1958), a plethora of research has been undertaken in an attempt to identify the determinants of capital structure without controlling for MCs. Considerably less research has been undertaken to identify the determinants of capital structure for MCs. Lee and Kwok (1988), Burgman (1996), Chen et al. (1997) and Homaifar, Zietz and Benkato (1998) are the few major studies that have investigated cross-sectional differences in capital structure between U.S.-based MCs and DCs. The major published studies on capital structure for Australian firms (not controlling for multinationality) include Allen (1991), Chiarella et al. (1992), Pham and Chan (1993), Gatward and Sharpe (1996), Twite (2001) and Cassar and Holmes (2003). Akhtar (2005) is the only study that considers Australian MCs. However, this chapter improves on Akhtar (2005) both in data and methodology which is discussed later.

MCs control substantial amounts of wealth and if capital structure is relevant to firm value then understanding the determinants of capital structure and the dynamics of financial structure decisions are economically important for MCs. Australian MCs play an important role in the Australian economy, both in their own right and an important avenue for the further internalisation of the Australian economy. Barriers against international trade are falling and corporations are competing at home and abroad. In Australia, internalisation of firms is accentuated by the introduction of deregulation and elimination of cross-border restrictions. As a result, multinational firms are increasing (World Investment Report, 2005).

The dynamics of capital structure can be explained through observing the speed of rebalancing DCs' and MCs' capital structure from year to year. While financial economists have devoted considerable attention to empirically testing alternative theories of capital structure, relatively little research has focused on explaining the dynamics of a firm's capital structure in the presence of transactions costs. Indeed in most empirical studies it is assumed that the firm's capital structure, when averaged over a three to five year period, is its desired or optimal capital structure. This averaging procedure is not only ad hoc and subject to measurement error, but it has the further disadvantage of precluding any study of the capital structure adjustment process over time. This omission is surprising in light of Myers's (1984) conjecture that 'large adjustment costs' could possibly explain the wide variation debt in ratios, since firms would be forced into long excursions away from their initial debt ratios.

The limited number of empirical studies which have considered capital structure dynamics may be classified into two groups depending on whether they utilize cross-sectional or time-series data. Fischer, Heinkel and Zechner (1989) use cross-sectional data in testing their model of the optimal dynamic recapitalization policy of a firm with exogenous investment decisions and in the presence of transaction costs. The second group of studies of capital structure dynamics utilises pooled time series and cross-sectional data (Taggart 1977; Marcus 1983; Jalilavand & Harris 1984). In the presence of adjustment costs (costs that associated in rebalance the leverage level to an optimal level from year to year), firms are assumed to gradually adjust their debt ratio at a constant rate so as to eliminate deviations between their optimal and actual debt ratio. Although Akhtar (2005) is the first author to control for multinationality in capital structure determinants using Australian data but the results suffer from not addressing the issue of dynamic settings of debt ratio across those two types of firms.

This chapter examines the dynamic settings of the Australian DCs' and MCs' debt ratios over time. While existing studies have produced a great deal of evidence on the associations between capital structure determinants, they have provided little evidence on the dynamics of leverage across MCs and DCs.[12] This chapter adds to Akhtar (2005) to the extent of including additional economic factors which have been recently found to be the most influential determinants (Frank & Goyal, 2003) of capital structure choice. Further, this chapter also incorporates additional international factors including the non-linearity effect of the depth and breadth of multinationality in addition to Akhtar (2005) to fully investigate the capital structure puzzle. The motivation for examining leverage dynamics in this study is fourfold. First, it directly addresses the determinants of Australian DCs and MCs by using different definitions of debt ratios, so that our results are not bias to certain measurement proxy of leverage ratios. Secondly, it examines the MCs' extent of foreign involvement through non-linear relationship. Thirdly, it provides insight into the differences in capital structure determinants across DCs and MCs. Fourthly, the speed of adjustment is tested within the DCs and MCs framework using Lintner's (19956) model. Finally, the impact of industry effect and time effect on the dynamics of capital structure for DCs and MCs is observed. The framework presented here is motivated by theoretical studies of leverage.

The results suggest that - after controlling for multinational effects, foreign exchange risk, firm-specific risks, average tax rate, size, age, cash dividend payments, free cash flow and growth variables are the important determinants for long-term debt across DCs and MCs regardless of what the definition of long-term debt ratios is. In explaining short-term debt, the significant determinants are bankruptcy risks, firm-specific risks, age and free cash flows. The impact of increasing Australian firms' global association through foreign sales (depth) and number of subsidiaries (breadth) show no significant optimal relationship with debt ratios. In relation to interaction effects that explain the differences between DCs' and MCs' debt ratios, the significant interaction factors are diversification and age for long-term debt ratios, and diversification, bankruptcy risks and growth for short-term debt. The additional financial factors – credit risks, economic risks and financial risks - have no significant impact on capital

[12] Bowman (1980), Castanias (1983), Bradley, Jarrell and Kim (1984), Kim and Sorensen (1986), Friend and Lang (1988), Titman and Wesssels (1988), Fischer, Heinkel and Zechner (1989, Mackie-Mason (1990), Jensen, Solberg and Zorn (1992), Mehran (1992), Rajan and Zingales (1995), Graham (1996a) and Berger, Ofek and Yermack (1997).

structure irrespective of what definition is used; however, inclusion of these variables improves the explanatory power of the model. Industry effects are considered and result show that the significance of the original determinants remains unchanged, and some industries became significant. Finally, leverage ratios varied significantly over the sample period and this variation is explained by the positive partial speed of adjustment, indicating the existence benefit outweighing the costs associated with trade-off theory of capital structure in adjusting the capital structure towards its target level from year to year. Further, this positive adjustment benefit is significantly higher for MCs relative to the DCs. This indicates that Australian MCs rebalance their target level faster than DCs.

The chapter is divided into six sections. To contextualise the study, the Australian capital market is described briefly in section 3.2. The next section reviews previous studies of capital structure literature and identifies the determinants of capital structure. The fourth section provides a brief discussion of data collection and detailed description of methodology used to investigate the capital structure determinants for Australian DCs and MCs. Section five discusses results and section six summarises the key findings and concludes the chapter.

3.2 AUSTRALIAN CAPITAL MARKET IN BRIEF

ASX has grown to be an important medium for public trading of equity and debt instruments for over 1750 listed firms with the market capitalization of US$1030 (A$1330) billion at the end of 2004. This is nearly three times more than ten years ago and more than Australia's national gross domestic product (GDP – US$611.7 (A$785.24)) billion (World Investment Report, 2005). While companies in Australia rely heavily on private debt, including bank and non-bank loans and leasing, this is not the case for public debt (Foster, 1996). In fact, when raising funds, a majority of funds are raised in Australia through equity securities.

The introduction in 1987 of a dividend imputation tax system in Australia represented a significant change to the tax framework. To the extent that tax incentives influence the use of debt financing, changes in tax laws which alter these incentives will lead to changes in corporate capital structures. Twite (2001) argues that the Australian imputation tax system provides an incentive for firms to: (i) reduce the level of debt financing utilised where this incentive varies across firms depending on the firm's effective corporate tax rate, and (ii) increase the level of external equity financing. Most prior studies have examined capital structure choice around changes in tax rates, which either increase (or decrease) the relative favourability of debt financing. The consequence of dividend imputation is to reduce the preference for debt in the financing of Australian operations.

In summary, a tax system which allows interest expenses as deductions may, depending on the relationship between corporate and personal taxes, still induce a tax preference. Therefore, the gain from leverage will be dependent on the extent to which the Australian imputation systems are fully integrated. Under a fully integrated dividend imputation system, corporate tax is effectively zero; although corporate tax is incurred, it is offset against personal tax liabilities.

3.3 THEORY OF MULTINATIONAL CAPITAL STRUCTURE

Intuitively, there are two competing theories that affect the MCs' capital structure determinants. On the one hand, one could argue that diversifying geographically its activities may reduce the overall business risk of the firm, the volatility of its cash flows and therefore the associated bankruptcy costs. Further, one could also argue that, for large multinational firms, it may be relatively more complex to monitor and control local managers in their subsidiaries, which could waste the local free cash flows in valueless activities (Jensen, 1986). Further work in this area has led to the agency cost and trade-off models which is arguably the most prominent capital structure models (Megginson, 1997). The trade-off model is explained on the idea that firms choose their optimal mix of debt and equity financing by trading-off the increasing agency costs of debt and equity with tax benefits of debt. As firm leverage increases, debt-holder risk increases as shareholders and managers maintain control of firm investments. Therefore, debt holders are forced to monitor shareholders, and their agents (the managers), as the potential for wealth expropriation increases with increases in debt.

As leverage increases, the debt tax shield and the expected bankruptcy costs increase and agency costs decrease (Doukas & Pantzalis, 2003). The literature on capital structure in the multinational firm concentrates primarily on whether tax shield, expected bankruptcy and agency costs differ between MCs and DCs (Reeb, Kwok & Baek, 1998).

3.3.1 The Impact of Differential Risk Levels on Capital Structure

Different risk level may affect capital structure via a number of channels. Shapiro (1978) argues that international diversification leads to a lower volatility of earnings as MCs have cash flows imperfectly corrected markets. He posits that international diversification reduces bankruptcy risk and enables the MCs to utilise more leverage in their capital structure. The underlying notion of this literature is that expected bankruptcy costs is a function of the probability and the cost of bankruptcy. The diversification arguments suggest that MCs will have a lower probability of bankruptcy costs due to greater usage of debt to gain greater tax advantages through multiple tax regimes operations.

The exchange risk and political risk arguments suggest, holding all else constant, that MCs will have a greater probability of a wealth loss and financial distress. The implication is that political/exchange rate risk would lead MCs to use less debt in their capital structure.

Kwok and Reeb (1998) develop another argument for changes in firm risk with internationalization (expanding internationally). Essentially, they argue that when firms in developed economies expand into less developed markets this increases the risk of the firm. In contrast, when developing economy-based firms expand into more developed markets, this leads to a decrease in firm risk. Kwok and Reeb (1998) suggest that exchange rate risk and political risk are less important than the impact of market risks. In a general sense, their arguments can be viewed as an extension of the diversification theory. The diversification argument suggests that different markets have imperfectly correlated returns. Kwok and Reeb (1998) extend this argument and hypothesise that these differing levels of risk and return in different markets lead to differing impacts on MCs risk with internationalisation, which is based on the relative risk of investments in the MCs' home country and the target country.

The above discussion is essentially concerned with expected bankruptcy cost and depending upon the arguments put forward three outcomes on the impact of capital structure are predicted. The diversification theory predicts that MCs will be able to use greater levels of debt due to a reduction in risk from imperfectly correlated international returns. The cross-border theory predicts that firm internationalisation will lead to increased firm risk and a reduction in debt usage. The upstream/downstream effect of Kwok and Reeb (1998) predicts that firm changes in risk with internationalization are a function of the relative risk of the MCs' host and target countries. Consequently, the optimal capital structure, with internationalization, differs between developed and emerging market-based multinationals. Thus, three distinct theories predict completely different optimal capital structures for MCs relative to DCs.

The preceding arguments concerning the relative change in expected bankruptcy costs with internationalization are all based on the probability of financial distress. A very different approach is offered in Reeb (1998), and Armstrong and Riddick (1998). These authors argue that MCs will have a higher cost of financial distress relative to domestic firms due to increased stakeholder heterogeneity and jurisdictional differences. Their arguments are predicated on the idea that multinational firms have operations in multiple legal jurisdictions and that creditors in different countries have differential information and remedies. These jurisdictional and informational differences increase the costs associated with financial distress. MCs bankruptcies must follow local bankruptcy rules rather than the bankruptcy rules of the home country (Desai, Foley & Hines, 2004a). There is a remarkable void in the laws governing multinational bankruptcies, but respect for the laws of the country in which a firm is operating implies that local bankruptcy rules apply to the resolution of insolvency proceedings involving a MC's subsidiary. When creditor protection is weak, borrowers capture most of the surplus from successful restructuring and the shortfall between promised and received payment is large. On the other hand, if the protection is strong, the shortfall is smaller (Noe, 2006). The MCs can strategically exploit conflicts of interest between home country and domestic creditors by using the claims of one countries creditors as a wedge to force concessions from the other country's creditors. This ability to strategically choose which claims to renegotiate and which to leave outstanding creates valuable renegotiation options for the distressed MC when it chooses to borrow in more than one country. The Ceteris paribus, a higher expected cost of bankruptcy indicates that MCs should use less debt in their capital structure relative to DCs. This is a similar prediction to the cross-border theory.

In summary, the impact of multinationality on a firm's capital structure due to differential risk levels is an empirical question.

3.3.2 The Impact of Differential Taxes on Capital Structure

A key attribute of the environment faced by multinational firms is multiple tax jurisdictions. When tax rates differ, firms with subsidiaries located in relatively low-tax countries may benefit vis-à-vis firms in higher-tax locations. To the extent that both sets of firms are competitors in international markets, their differential tax status could provide a competitive advantage for the firms subject to lower taxes. This suggests that a single-country firm with all its operations in a low-tax location could have an advantage over a multinational with operations in both low- and higher tax countries (Singh & Hodder, 2000).

On the other hand, firms can use leverage in their capital structures to reduce the "tax bite" on corporate earnings (Singh & Hodder, 2000). To the extent that firms can effectively reduce their taxes via capital structure decisions, differential tax rates across locations become less important. However, the extensive use of leverage can also create problems when earnings are uncertain. In these circumstances, borrowing can increase interest tax shields; but it also increases costs such as the possibility of losing tax shields as well as agency costs and financial distress costs. This tradeoff is analogous to that for a domestic firm; however, for a multinational firm, the optimal capital structure can differ across subsidiaries due to differences in earnings uncertainty and local tax rates as well as other subsidiary- and country-specific characteristics. Further, the firm's capital structure can be characterised not only by the total amount borrowed at each subsidiary but also by the currency composition of that debt.[13] Multinational firms can also mitigate tax differentials and influence the costs of leverage by shifting income and/or tax shields across subsidiaries. This could involve sale-and-lease-back arrangements, transfer-pricing adjustments, cross-guarantees of subsidiary debt, or a variety of other mechanisms. Although shifting income and tax shields can be costly, the benefits for the firm may outweigh the costs. Thus, MCs' capital structure decisions within an environment characterized by: uncertainty regarding both earnings and exchange rates, taxes which differ across countries, and varying degrees of flexibility for firms to shift income and/or tax shields across subsidiaries.

Senbet (1979) derives a capital structure model suggesting that international tax differentials play an important role in the MCs' capital structure decision. Shapiro (1978) posits that MCs will tend to use greater debt. These tax arguments suggest that the optimal capital structure for the MCs, holding all else constant, will involve greater usage of leverage as the MCs get higher tax benefit of debt (Rhee, Chang & Koveos, 1985; Madura & Fosberg, 1990; John, Senbet & Sundaram, 1991; Liu & Hsueh, 1993).

MCs' subsidiaries are generally financed with a mixture of internal debt and equity from the parent corporation (Chowdhry & Coval, 1998). The choice between intra-firm or intra-firm equity financing for the subsidiary is, to a large extent, influenced by rules on corporate taxation in the parent country, it pays to transfer as much funds as possible in the form of interest payments to the parent, since these are tax-deductible in the subsidiary country. Thus, income generated by the subsidiary gets taxed at the parent rate – the smaller of the two rates. This suggests that the subsidiaries should be financed entirely by intra-firm parent debt. Also, the financing of foreign affiliates is likely to be influenced by the effect of local tax rates and capital market conditions on the after-tax cost of funds and by the ability of affiliates to obtain

[13] The currency composition choice can be viewed as a hedging decision since foreign currency borrowing is equivalent to borrowing in the firm's domestic currency plus hedging via a forward contract (or swap) so that the net obligation from the two transactions is effectively denominated in the foreign currency.

resources from parent companies. As a result, affiliate financing illuminates the importance of taxes in influencing capital structure, the impact of institutions on financing choices, and the workings of internal capital markets. The level and composition of leverage are influenced by capital market conditions. In countries with weak creditor rights and shallow capital markets, affiliates borrow less externally and more from parent companies. This suggests that internal borrowing may substitute for costly external borrowing. The external borrowing is costly in environments in which creditor rights are weak and capital markets are shallow and that MCs' subsidiaries substitute parent for external borrowing in response to these costs. Desai, Foley and Hines (2004a) find that the capital structure of foreign affiliates and internal capital markets of multinational affiliates are financed with less external debt in countries underdeveloped capital markets or weak creditors rights, reflecting significantly higher local borrowing costs. They further states that MCs appear to employ internal capital markets opportunistically to overcome imperfections in external capital markets.

Further, Foley, Hartzell, Titman and Twite (2007) finds that U.S. multinational firms hold cash in their foreign subsidiaries because of the tax costs associated with repatriating foreign income. Consistent with this argument, firms that face higher repatriation tax burdens hold higher levels of cash, hold this cash abroad, and hold this cash in affiliates that trigger high tax costs when repatriating earnings. In addition, they also find certain firms, specifically those that are less financially constrained domestically and those that are more technology intensive, exhibit a higher sensitivity of affiliate cash holdings to repatriation tax burdens.

3.3.3 The Impact of Differential Agency Costs on Capital Structure

Lee and Kwok (1988) suggest that the MCs have greater agency costs relative to domestic firms. The agency cost theory is predicated on the idea that it is more difficult to monitor managers in the subsidiaries of multinational firms. Lee and Kwok (1988), Burgman (1996) and Reeb, Kwok, and Baek (1998) note that monitoring agents in other countries is more difficult due to geographical constraints, cultural differences, higher auditing costs, differing legal systems, and language differences. Additionally, these national differences increase the complexity of such standard tasks as generating multi-country financial statements, hiring multi-country auditors and/or multiple auditors, and completing consolidated balance and income statements.

The increased monitoring difficulties in the MCs impacts firm capital structure in two ways. The first is that it affects the agency cost due to an underinvestment problem. The second effect stems from an asset substitution problem. Lee and Kwok (1988) note that the MCs have greater real options than domestic firms and the value of these options depends upon future firm investments. Myers (1977) suggests that firms with greater real options have a greater potential for an underinvestment problem. The underinvestment problem is based on the idea that when debt matures after the expiration of the real option, the shareholders may reject positive net present value projects because the benefits from the project will accrue mainly to the debt holders. Recognising this potential underinvestment problem, debtholders will pay less for a firm's debt. This price reduction is an agency cost and this agency cost increases with increased levels of debt usage. The implication is that the MCs will have less incentive to issue debt, relative to DCs, as agency costs will be higher due to increased monitoring difficulties.

The MCs also face potentially higher agency cost due to an increased asset substitution problem stemming from increased monitoring difficulties (Lee and Kwok, 1988). Jensen and Meckling (1976) note that equity holders have an incentive to expropriate wealth from debt holders. The wealth expropriation argument is based on the idea that shareholders, as the residual claimants, prefer high return (high risk) projects, whereas debtholders prefer lower risk projects with returns that are more likely to allow debt payments. Managers acting on behalf of equity holders have an incentive to substitute low risk assets for high risk assets. To minimise the asset substitution, debtholders include detailed covenants in debt contracts. MCs operations in multiple countries increase the difficulty or complexity of designing these contracts and increase the difficulty of monitoring firm investments relative to domestic operations. The implication of the asset substitution problem is that the MCs will have less incentive to issue debt, relative to DCs, as agency costs will be relatively higher.

3.4 CAPITAL STRUCTURE AND ITS DETERMINANTS

Modigliani and Miller (1958) show that choice of capital structure is irrelevant to firm value under a range of assumptions, including a perfect capital market. However, in reality, markets are less than perfect and consequently capital structure is relevant to firm valuation. Many theories explain variations in capital structure. This subsection focuses on the determinants of capital structure as well as definition of capital structure and the various theories put forth to explain empirical observations.

3.4.1 Leverage

Cross-sectional tests of capital structure theories examine if debt ratios vary across firms as predicted by theory. Two strands can be distinguished. The first is concerned with determining which factors are correlated with leverage. This literature is extensive and includes contributions by Bradley, Jarrell and Kim (1984), Long and Malitz (1985), Titman and Wessels (1988), Crutchley and Hansen (1989), Smith and Watts (1992), Rajan and Zingales (1995) and Frank and Goyal (2004). Harris and Raviv's (1991) survey of these studies has also been influential. The second strand of this research is concerned with the impact of different definitions of leverage debt leverage definition and econometric issues, and includes contribution by Myers (1977), Baltagi (2001), Little and Rubin (2002) and Welch (2004),. Also included in this strand is debt level versus changes in debt analysis and includes contribution by Shyam-Sunder and Myers (1999), Frank and Goyal (2003, 2004), Fama and French (2004) and Leary and Roberts (2004).

3.4.1.1 Leverage Definition

In testing which factors correlated with leverage, it is necessary to define leverage. Many different empirical definitions have been used. A key issue has been whether to examine book leverage (book value of debt divided by book value of total assets) or market leverage (market value of debt divided by book value of total assets). Early empirical work tended to focus on book leverage. Myers (1977) argued that managers focus on book leverage because debt is better supported by assets in place than it is by growth opportunities. Book leverage is also preferred because financial markets fluctuate a great deal and managers are said to believe market leverage numbers are unreliable as a guide to corporate financial policy (Frank and Goyal, 2005). Further, due to data limitations of market value of leverage, I use book value of leverage.

Subsequent literature has given more attention to calculation of debt ratios. While some argues book value of long term debt should be scaled by total assets, others argue it should be scaled by market value of equity figure. Further, some argues not including short-term debt in the capital structure do not give full picture of firms' debt structure. Given there is no clear consensus as to which definition is best, we investigate both long-term and short-term debt. In particular, we use three different measurements of long term debt ratios[14] and one measurement of short term debt ratios[15] in my analysis to investigate the Australian firms' capital structure determinants.

3.4.1.2 Long-term versus Short-term Leverage

Bevan and Danbolt (2002) provide the motivation for using short-term debt. Given the predominance of short-term debt in corporate financial structure, they suggest that analysis based solely upon long-term debt provide limited insight into explaining capital structure decision making. It is further argued by Van der Wijst and Turik (1993), Chittenden and Hutchinson (1996), Barclay and Smith (1999) and Hutchinson and Glick (1999) that the determinants of leverage based on long-term leverage may mask the significance of short-term debt. Further, firms are particularly sensitive to temporary economic downturns that have less

[14] *LEVERAGE (Long-term debt(LTD))*: i) $LTD\_MV_{i,t}$ is measured as book value of long term debt divided by book value of total assets; ii) $LTD\_BV_{i,t}$ is measured as book value of long term debt to sum of book value of long term debt and market value of equity; and $TOT\_LTD\_BV_{i,t}$ is the total debt (including long term and short term) scaled by book value of total assets.

[15] *LEVERAGE* (Short-term debt): $STD\_BV_{i,t}$ is defined as the book value of short term debt scaled by book value of total assets.

effect on long-term debt but more effect on short-term debt (Chan, Chen and Hsieh, 1999). Therefore, short-term debt takes a role in determining capital structure in this chapter.

3.4.1.3 Leverage Change and Speed of Adjustment Costs

Apart from different definition of leverage and what determines a firm's level of leverage a further strand of capital structure research considers changes in leverage. Firstly, leverage can change due to an active decision of the firm to issue or repurchase securities. Leverage can also change when the firm's operational and financial circumstances change (Shyam-Sunder & Myers, 1999; Frank & Goyal, 2003). Fama and French (2004), Leary and Roberts (2004), and Frank and Goyal (2004) examine both changes in debt and changes in equity. Changes in debt have played an important role in assessing the pecking order theory. This is because the financing deficit is supposed to drive debt according to this theory. Shyam-Sunder and Myers (1999) examine how debt responds to short-term variation in investment and earnings. The theory predicts that when investments exceed earnings, debt grows, and when earnings exceed investments, debt falls.

Secondly, static trade-off theory predicts a target debt ratio that depends on the tax benefits of debt and the costs of financial distress. By relying on adjustment costs, this theory may suggest a target adjustment process. Frank and Goyal (2005) find that, on an aggregate basis, the U.S. firms' leverage, as a whole, is quite stable. They argue that either it is caused by mean-reverting actions of individual firms or it could be caused by the process of firm entry and exit.

Empirical tests of target adjustments focus on whether firm-level leverage reverts to target. Since the target is not observable, it must be estimated or its effects must be imputed. Early studies take a long-term average as the target. These early studies estimate target debt ratio as the average debt ratios across a sample period. Example include Taggart (1977), Marsh (1982), Jalilabvand and Harris (1984), Shyam-Sunder and Myers (1999). The approach assumes that firm characteristics that affect leverage remain unchanged over time. However, it is quite unlikely that the target changes over time as firm characteristics change. Most recent studies, therefore, adopt a two-step procedure in which an equation for the target is estimated first and the fitted value is then substituted into the adjustment equation. Contributions to this approach include studies by Fama and French (2002), Hovakimian, Opler and Titman (2001), Korajczyk and Levy (2003), and Kayhan and Titman (2004). The target factors are typically taken to be the same as factors considered in leverage level.

A speed of adjustment analysis on leverage ratios for Australian DCs and MCs has not been considered by Akhtar (2005). Therefore, this aspect of leverage ratios is analysed in this chapter.

3.4.2 Additional Foreign Capital Structure Determinants

After reviewing the capital structure determinants, this section introduces some of the recently published research on capital structure that is specific to MCs. The added dimensions of operating within an international arena induce complexities into the organisational structure of MCs, particularly their capital structure decisions within an environment of potentially increased exchange rate risks and varied political risks. The beginning of the research on capital structure for MCs began with the application of Modigliani and Miller's (1958) theorems in the early 1970s (Adler, 1974; Krainer, 1972, 1973; Naumann-Etienne, 1974). Krainer (1972) finds that the existence of exchange rate risk and repatriation risk leads to the invalidation of the Modigliani and Miller (1958) theorems which means that the capital structure of MCs' global operating risk exposures is relevant for their valuation (Krainer, 1972).

A firm's international expansion requires appropriate financing. The ability of MCs to grow and expand depends greatly upon their ability to acquire additional capital. An MC's concern about capital structure changes as the degree of its international involvement increases (Chen et al., 1997). Recent studies also reveal that MCs tend to possess different norms of capital structure according to their country of origin (Agrawal and Narayanan, 1994). The following details the main uncertainties and risks involved in determining MCs' capital structure.

Therefore, in addition to the above variables, irrespective of an MC's domicile country, determining MCs' capital structure requires the inclusion of additional factors such as multinationality, diversification, political risk and foreign exchange risk (Burgman, 1996; Chen et al., 1997; Fatemi, 1984; Lee & Kwok, 1988; Mansi & Reeb, 2002; Wald, 1999).

3.4.2.1 Multinationality

Multinationality of a firm and the effect this has on capital structure is influenced by a range of factors that are captured by whether the firm is a multinational or not. Identifying the influence of the factors that are attributable to multinationality is beyond the scope of this research. However, the impact of these variables is captured in the following analyses through to use of a dichotomous variable. Multinationals are coded as unity and zero otherwise. This means that the significance of multinationality on capital structure will be ascertained.

3.4.2.2 Diversification

Diversification measures the breadth of firms' international involvement. It is often argued that the international diversification of earnings should enable MCs to sustain a higher level of debt than DCs, without increasing their default risk (Shapiro, 1996; Eiteman, Stonehill & Moffett, 1998). MCs' expansion is thought to bring significant performance benefits to organisations because of a variety of reasons, such as the ability to take advantage of economies of scale (Grant, 1987; Porter, 1985) and accelerate new product development and introduction (Barlett & Goshal, 1989), the access to wider new technologies, and the opportunity to arbitrage factor costs differentials across multiple locations (Grant, 1987). It is further suggested that MCs have opportunities to: gain greater returns to intangible resources; use market power; spread their market risks; and seek less expensive inputs and less price-sensitive markets (Kim, Hwang & Burger, 1993). In addition to the above benefits of geographical diversification, it is also argued that the notional increase in debt capacity provides MCs with the opportunity to take advantage of increased tax deductions of interest payments.[16] Shapiro (1978) argues that

[16] Berger and Ofek (1995) document that although diversified firms held greater debt levels, the increased tax shields were not economically significant.

international diversification leads to a lower volatility of earnings as the MCs have cash flows in imperfectly correlated markets (Agmon & Lessard, 1977; Chung, 1993; Hughes, Logue & Sweeney, 1975; Rugman, 1976). As the degree of risk is a major determinant in a firm's financing decision, international diversification may enhance debt capacity, and thereby raise the target debt ratio for MCs. Shapiro (1978) suggests that international diversification reduces bankruptcy risk and enables MCs to utilise more leverage in their capital structure. The underlying notion of this literature is that expected bankruptcy costs are a function of both the probability of bankruptcy and the cost of bankruptcy. The diversification argument suggests that MCs will have a lower probability of bankruptcy and have a lower expected cost of bankruptcy. A lower expected bankruptcy cost allows for a greater usage of debt to gain greater tax shields. Shapiro (1978, 1996) points to corporate international diversification as a factor which may be relevant in establishing worldwide capital structures. With subsidiaries in different countries, MCs are able to diversify cash flows internationally. Such diversification reduces overall bankruptcy risk, which, in turn, enables MCs to be more highly leveraged than DCs.

However, while it is believed that there are several gains to be made by venturing into overseas markets, it can be argued that continued foreign expansion has a negative effect on minimising risks. Erunza, Hogan and Hung (1999) find that the incremental gains from international diversification beyond home-made diversification portfolios have diminished over time in a way consistent with changes in investment barriers. For example, continued expansion has to contend with the increasingly difficult prospect of managing a multicultural, multi-location workforce, serving distinctly different customer markets, and navigating through a maze of formidable constraints imposed by the number of locations where operations are established. This will lead to MCs having both a lower debt ratio and a higher agency cost of debt than DCs (Lee & Kwok 1988; Burgman, 1996; Chen et al., 1997; Doukas & Pantzalis, 1997). The reason being is that the effect of higher agency costs of debt for MCs incurred as a result of international capital and labour market imperfections,[17] complexity of international operations (cultural diversity arising in varied locations brings with it numerous problems of communication, co-ordination, control, and motivation (Kogut & Sing, 1988), and higher proportions of intangible assets, exceeds the possible benefits of international diversification and leads to lower debt ratios for MCs. In summary, the extent of diversification of international operation and the impact this has on firm's capital structure is unknown.

3.4.2.3 Foreign Exchange Risk

Krainer (1972), examining the applicability of Modigliani and Miller (1958) propositions to a bi-national firm, argues that the existence of foreign exchange risk[18] is sufficient to cause two otherwise identical firms to belong to different risk classes. MCs and DCs that are exposed to foreign exchange risk will affect the demand and supply of the firm's products and prices and costs for the firm (Adler & Dumas, 1984). The more sensitive the MCs are to foreign exchange rate fluctuations, the greater the expected cost of bankruptcy risks and therefore the lower the optimal debt levels. An alternative argument can be stated that the greater the economic foreign exchange rate exposure, the greater is the debt level, because if an MC has foreign currency denominated income from its foreign affiliates, it can hedge the exchange risk on this income by raising foreign currency denominated capital.

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[17] As firms encompass increasingly broader geographic markets, the costs associated with geographic dispersion begin escalating, sometimes quite rapidly, thus leading to eroded profit margins (Geringer, Beamish & Da Costa, 1989).

[18] Foreign exchange risk is the risk that the value of the firm will be adversely affected by a change in foreign exchange rates. (Some scholars would argue that such risk is two sided, and that the possibility of an increase in value is also a foreign exchange risk). For the purpose of this thesis, which tends to view from the perspective of a business manager, only adverse effect in this context will be mentioned. Foreign exchange risk is usually thought of as consisting of several components: 1) *Transaction risk* which is the chance that the value of the outstanding financial obligations already incurred will change in value because of an unexpected exchange rate change. 2) *Operating risk* which is the chance that the present value of the firm (or its market value), calculated in terms of the present value of expected future operating cash flows, will fall because of an unexpected exchange rate change. 3) *Translation risk*, also called accounting risk, which is the chance that the accounting-derived value of the owner's equity will drop because the accounting process of translating and incorporating foreign currency statements of affiliates into a consolidated financial statement of the parent will lead to a decrease in reported owner's equity. 4) *Interest rate risk* associated with multinational firms, which is the chance that the home currency equivalent interest costs of servicing various forms of foreign currency denominated debt will rise because of an unexpected change in foreign exchange rates.

Empirical studies of foreign exchange exposure mostly fail to detect a significant link between exchange rate movements and contemporaneous changes in the financial structure of MCs (Jorion, 1990; Bodnar & Gentry, 1993; Ahimud, 1994). Exchange rate risk could affect the strategic financing for international expansion of MCs, although early studies suggest that exchange risk is irrelevant to the financial leverage decision (Mehra, 1978; Senbet, 1979). According to Aliber (1983), the financing costs of corporations in different countries differ because of foreign exchange risk, thus affecting the direction of international investment. Choi and Prasad (1995) analysed the relationship between foreign exchange risk and corporate financing decisions and reported that foreign exchange risk affects significantly a firm's financing decisions for international investments.

It is important that the financial manager consider the impact of exchange rate changes. Decisions which appear optimal under one set off future exchange rates may be suboptimal under another set of future rates. Initial work by Giddy and Dufey (1975) and Rogalski and Vinso (1977) demonstrates that foreign exchange markets are efficient, so explicitly forecasting these rates does not appear feasible. Even though end-of-period exchange rates cannot be explicitly forecast, this issue needs to be considered in capital structure determination of MCs. Since one cannot know for certain what the end-of-period exchange rates will be even under a fixed exchange rate regime, there is the risk that the cost of funds will be different from that on which the decisions were based.

Exposure to foreign currency risk has become an increasingly important issue to investors and financial managers alike with the globalisation of markets, particularly in the wake of the events that occurred in the Asian financial markets in the later part of 1997 (Di Iorio & Faff, 2000). Although direct exposure (such as transaction and translation exposure) can be effectively managed by well-structured hedging strategies, indirect or economic exposure may cause significant variability in cash flows for most MCs and DCs. Therefore, foreign exchange exposure may be a determinant in firms' capital structures.

We capture foreign exchange risk through firms' overseas sales over total consolidated sales. This measurement is also sometimes used to determine the depth of firms' internationalisation. Hoskisson and Kim (1997) and Gomes and Ramaswamy (1999) argue that there might be a inverted U relationship between internalisation of a firm and its financing decision. They argue that overtime, the positive impact of international financing is out weighted by the costs of coordinating a widely dispersed network of international operations. On the other hand, Ruigrok and Wagner (2003) finds U-shaped between firms international involvement and financing decision. He argues that firms initially experience costly borrowing in international environment; however, as firms learns from their international experience over time, their borrowing costs go down and international borrowing becomes cheaper. We will test the depth of Australian firms' international involvement (U-shaped or inverted-U shaped relationship) and their impact on leverage.

3.4.2.4 Political Risk

According to Jodice (1985), political risk can be defined as changes in the operating conditions of a firm that arise out of a political process, either through war, insurrection, or political violence, or through changes in government policies that affect the ownership and behaviour of the firm. Political risk can be conceptualised as events in the national and international environments that can affect the physical assets, personnel, and operations of firms.[19] Such adverse effects often take place through constraints on the way in which the MCs operate in foreign countries. Political risk may be divided into two categories:

Macro political risk, which is the chance that political events in a host country will affect all foreign firms in a country, regardless of what they do or what industry they are in.

[19] Similarly, Howell and Chaddick (1994) define political risk as political events, decisions, and conditions in a country (including those that are social) that result in eventual loss/harm done to a business operating in a foreign environment such that money is lost or reduction in profit margin occurs. Thus, the four elements that fall under the broad umbrella of political risk are:

(a) governance system of a country (political structure)
(b) nature of particular governors (authority)
(c) response of the population to the government (legitimacy)
(d) nature of society being governed (culture, social phenomenon).

Micro political risk, which is the chance that political events in a host country will affect only firms in a specific industry or a specific firm. Examples might be constraints on petroleum firms that do not apply to foreign firms in other countries, or constraints on a specific firm because they also do business in a country unfriendly to the host country. Examples of the latter would be constraints by Islamic countries against firms doing business in Israel, or constraints by China against firms doing business in Taiwan.

Adler and Dumas (1975) discuss the default risk of foreign debts which may arise from the inconvertibility of currency, a political risk factor relevant to the MCs' financing decision. Besides the MCs as a whole, the capital structure of a foreign subsidiary may also be affected by political risks. Stonehill and Stilz (1969) discuss how foreign affiliates tend to borrow heavily in the local market to minimise asset exposure to political risk. In addition, less developed countries tend to restrict local borrowing by foreign multinationals (Robock & Simmonds, 1989). Strategic partnership in the form of an equity joint venture can also be viewed as a means of reducing political risks. However, the relationship between the MCs and the host country is asymmetrical and MCs may be unable to prevent the host country's government from changing the contractual base on which the initial investment was first made (Sachs, 1983). This means that firms with significant foreign financing, foreign suppliers or customers, or other international transactions or assets, are relatively exposed to adverse changes in currency controls, capital flow barriers and other laws and regulations that constitute political risk. DCs also are exposed to their domicile country's political instability. It can be argued that MCs are relatively more exposed to DCs political risks as MCs have to deal with multiple country's political environment (Burgman, 1996). The implication of political risk for MCs' debt level across sample countries is an empirical question.

3.4.2.5 Credit Risk, Economic Risk and Financial Risk

Understanding of country risk for investors and borrowers is very important given the increasingly global nature of investment portfolios. In addition to political risks and foreign exchange risks, there exist three other important country risks - namely credit risks, economic risks and financial risks which also play important roles in determining capital structure for DCs and MCs (Erb, Harvey and Viskanta, 1996). Therefore these three variables will be also investigated in our analysis.

3.4.3 Trade-off Capital Structure Theory

The trade-off theory of capital structure is a theory in the realm of financial economics about the corporate finance choices of corporations. Its purpose is to explain the fact that firms or corporations usually are financed partly with debt and partly with equity. It states that there is an advantage to financing with debt, the tax benefit of debt and there is a cost of financing with debt, the costs of financial distress including Bankruptcy Costs of debt and non-Bankruptcy costs (e.g. staff leaving, suppliers demanding disadvantageous payment terms, bondholder/stockholder infighting, etc). The marginal benefit of further increases in debt declines as debt increases, while the marginal cost increases, so that a firm that is optimizing its overall value will focus on this trade-off when choosing how much debt and equity to use for financing. Trade off theory is broken down into static and dynamic trade-off theories.

3.4.3.1 Static Trade-off Theory

3.4.3.1.1 Bankruptcy Costs

Kraus and Litzenberger (1973) formalise the argument that increases in leverage increase the probability of bankruptcy and thus increase expected bankruptcy costs. Since debt involves commitment of periodic payment, highly leveraged firms are relatively more prone to bankruptcy. However, as debt provides a tax benefit in the form of deductibility of interest a trade-off exists between the increased benefit of the tax deductibility and the increased cost of bankruptcy. The point at which additional leverage generates an increase in expected bankruptcy costs that just offset the tax subsidy to the incremental debt defines the optimal capital structure.

It is argued that MCs will have a higher cost of financial distress relative to DCs due to increased stakeholder heterogeneity and jurisdictional differences (Armstrong & Riddick, 1998; Reeb, 1998). These jurisdictional and informational differences increase the costs associated with financial distress. The heterogeneity argument, holding the probability of bankruptcy constant, suggests that the MCs should have a higher expected cost of bankruptcy relative to DCs. Ceteris paribus, a higher expected cost of bankruptcy indicates that MCs should use less debt in their capital structure relative to DCs. On the other hand, it can be argued that MCs should have less bankruptcy costs than the DCs since MC exposure to political risk and foreign exchange risk can be minimised through international diversification (Lee & Kwok, 1988). Given the opportunity for international diversification, overall cash flows of MCs can be more stable. Reduction of cash flow variability reduces the probability of bankruptcy and therefore the expected bankruptcy costs (Shapiro, 1978).

3.4.3.1.2 Non-debt Tax Shield

Miller and Modigliani (1963) documents that firms gain an advantage in the form of tax deductions associated with interest payments on debt. Subsequently, DeAngelo and Masulis (1980) Mackie Mason, (1990) and Graham, 1996a) formalised a framework whereby tax deductions (tax shields), which are not associated with debt, act as substitutes for interest deductions such as depreciation, depletion allowances, investment and foreign tax credits. These "non-debt tax shields" minimise the use of debt by providing tax advantages similar to debt. Consequently, the more non-debt tax shields, the less benefits from tax deduction of interest on debt. Therefore an inverse relationship is expected between non-debt tax shields and debt levels in a corporate tax environment.[20]

Robbins and Stobaugh (1972) argue that MCs operate in countries under a variety of tax structures. These different tax structures may provide benefits to MCs that are not available to DCs. Because of differences in corporate tax code, depreciation, depletion, and withholding tax

[20] Bowen, Daly and Huber (1982), Boquist and Moore (1984), Bradley, Jarrell and Kim (1984), Titman and Wessels (1988) and Homaifar, Zietz and Benkato (1994) all analysed the association between leverage and non-debt tax shields. However, their findings are inconclusive.

policies across international boundaries, MCs are in a better position to shelter their income using non-debt tax shields than DCs. Therefore, non-debt tax shields are expected to be more important for MCs relative to DCs.

3.4.3.1.3 Systematic Risk

Business risk refers to the risk associated with the future operations of the business. This is the risk that is inherent in the expected net operating income stream generated by the assets of the firm (Bishop et al., 2004). Generally, it is expected that there is an inverse relation between leverage and business risk potentially due to the associated increase and operational risk (Burgman, 1996).

The literature includes substantial information on the potential effects of international diversification, but little in the way of risk-reduction through corporate international diversification. By calculating the failure-probabilities of MCs and comparing them to DCs, Shaked (1986) set out to show that MCs have a lower insolvency-probability than DCs and that the systematic risk is lower as well. His results found that the mean insolvency-probability of the MCs was significantly lower than that of the DCs, MCs are more capitalized than DCs and the average systematic risk (beta) of MCs is significantly lower than that of DCs. Among others, Reeb, Kwok and Baek (1998) and Madura (1998) also report the significance of systematic risk analysis in determining firms' financial structure.

3.4.3.1.4 Tax Rate

Under perfect capital markets where taxes and transaction costs are non-existent, the market value of a firm is independent of its capital structure (MM, 1958). That is, returns to shareholders will be the same regardless of whether the firm is levered or unlevered. Thus, the financing choice between debt or equity is irrelevant. However, under more realistic assumptions of capital markets (e.g. corporate tax), debt financing has an important advantage over equity – the interest payments of the firms are a tax deductible expense.

Consistent with the MM (1963) proposition which incorporates corporate income tax benefit, Miller and Scholes (1978) show that firms with higher expected tax rates (which is indicative of more profitable firms with less volatile earnings) have higher leverage. Mackie-Mason (1990) looks into the incremental financing decisions using discrete choice analysis to show how tax shields, specifically tax loss carry-forwards and investment tax credits, substantially affect debt policy. He concludes that firms with high tax loss carry- forwards are less likely to use debt, since firms with loss carry-forwards are unlikely to be able to use interest deductions. On the other hand, firms with investment tax credits (which are often profitable and pays taxes) are, on average, unaffected by investment tax credits in their decision to issue debt. But when the firm nears tax exhaustion, investment tax credits substantially reduce the profitability of it issuing debt.

3.4.3.2 Dynamic Trade-off Theory

Dynamic capital structure theory considers the effects of transaction costs on capital structure and how capital structure changes through time. This theory explained by firm size and collateral value of assets.

3.4.3.2.1 Size

A number of authors have suggested that capital structure may be related to firm size. That is, a positive relationship should be observed between capital structure and size. The cost of issuing debt and equity securities is also related to firm size. It is thought that the larger the firm, the more information that is available on it and the lower the costs caused by information asymmetries, ceteris paribus. It is also postulated that transaction costs will be comparatively higher for smaller firms than for their larger peers (Smith, 1977). The argument here is that firm size can be viewed as a proxy for information asymmetries between the firm and the market, indicating a firm's stability. In turn, this would suggest a positive relationship between capital structure and size. Further, Michaelas, Chittenden and Poutziouris (1999) and Smith and Warner (1979) argue that the agency conflict between shareholders and lenders may be particularly severe for small companies. Lenders can manage the risk of lending to small companies by restricting the length of maturity offered. Larger firms can be expected to have more long-term debt relative to smaller firms (Scott & Martin, 1975; Ferri & Jones, 1979; Barnea, Haugen & Senbet, 1980; Agrawal & Nagarajan, 1990; Whited, 1992; Stohs & Mauer, 1996). However, some studies have found mixed evidence. Crutchley and Hanson (1989) and Rajan and Zingales (1995) found a significant positive correlation between company size and capital structure, while Stohs and Mauer (1996) found the opposite, and Kester (1986) and Remmers et al. (1974) found no significant size effect. Barclay and Smith (1995) find the correlation between size and capital structure switches, depending upon whether the estimation technique is used. However, the results of the research provide sufficient argument to justify the inclusion of firm size as a determinant of capital structure, which has a positive impact on long-term debt. It remains an empirical question as how firm size impact on MCs capital structure.

3.4.3.2.2 Collateral Value of Assets

A firm with valuable collateral assets can often borrow on relatively favourable terms and hence have low borrowing costs (Graham, 2000). However, the influence on capital structure is not clear. Turning first to those studies that support a positive relationship, Berger, Ofek and Yermack (1997), Galai and Masulis (1976), Jensen and Meckling (1976), Myers (1977) and Rajan and Zingales (1995) argue that stockholders of levered firms have an incentive to invest sub-optimally, and thus transfer wealth away from a firm's bondholders to stockholders. If, however, debt can be secured against a firm's fixed assets, and covenants are put in place to restrict the use of loaned funds, bondholders have an improved guarantee of repayment, depending on the value of the assets used as collateral. Clearly, no such guarantee exists if the debt is unsecured. It is argued that the process of selling debt secured against assets with known values will reduce the asymmetric information costs of issuing debt. In addition, Scott (1977) asserts that a transfer of wealth from unsecured to secured creditors will occur when secured debt is used. No formal theory is found in the literature to suggest any difference of DCs and MCs collateral value of assets and its influence on capital structure. Therefore, it remains an empirical question.

3.4.3.2.3 Firm's Age

Petersen and Rajan (1994) show that leverage decreases with age of the firm. Although they cite agency issues as a potential explanation, age of the firm may also proxy for lower information asymmetries. As firms grow older, more information regarding their future viability becomes available. Lower information asymmetries imply higher leverage. Bondholders would be more likely to lend to firms they know more about than lending to firms they know less about. Therefore, given this conflict, we do not hypothesize what effect age has on leverage. However, we expect MCs to be older than DCs since firms are generally likely to begin as domestic corporations and expand over time to become multinationals.

3.4.4 Pecking Order Capital Structure Theory

The pecking order theory considers the effects of a particular type of transaction cost that is caused by information asymmetry and suggests that debt ratios will diverge from trade-off optimal ratios in predictable ways. The pecking order theory is mainly divided into two categories: adverse selection and agency theory, which are discussed below.

3.4.4.1 Adverse Selection

3.4.4.1.1 Profitability

Under the pecking order theory, firms finance new investments first with retained earnings, then with lower risk debt, then with higher risk debt, and finally, under duress, with equity (Fama & French, 2001). A more profitable firm is expected to have access to greater internal finances and hence will tend to hold less debt in its capital structure. "Profitability" in this context refers to past profitability, which determines the level of funds retained and is expected to be negatively related to long term debt. Consistent with this theory, Toy et al. (1974), Kester (1986), Hasbrouck (1988), Titman and Wessels (1988), Allen (1991), Rajan and Zingales (1995) and Michaelas, Chittenden and Potziouris (1999), Cassar and Holmes (2003) and Akhtar (2005) and all find significant negative relationships between leverage ratios and profitability.[21]

[21] However, Graham, Lemmon and Schallheim (1998) find that market leverage is positively related to profitability.

MCs pursuing both international and product diversification strategies should be less leveraged in so far as MCs tend to be more profitable than DCs (Sambharya, 1995; Broaden & Samii, 2001). This argument is based on the concept that MCs' expansion would bring a significant increase in profitability to organisations because of a variety of reasons, such as the ability to exploit economies of scales (Porter, 1985; Grant, 1987), hasten new product development and introduction (Barlett & Ghoshal, 1989), access new technologies and to take advantage of arbitrage opportunities in factor cost differentials across multiple locations (Kogut, 1985). While it is clear that there are several gains to be made by multinationalisation, it can be argued that continued foreign expansion could be accompanied by falling profit growth and negative marginal returns beyond some optimal level of activity. The reasons for falling profit growth are increasing costs associated with control and coordination of geographically distanced subsidiaries, and administrative obstacles encountered in managing culturally dissimilar and distinct markets with a variety of unique customer needs. Interestingly, Frank and Goyal (2003, 2004) argue that the significance of profitability factor is diminishing overtime. Therefore, it would be defensible to argue that MCs would have higher (lower) profitability depending on the benefit (costs) associated with their global expansion. Following this, a mixed sign is expected between capital structure and profitability for MCs.

3.4.4.1.2 Dividends

Myers (1984) acknowledges that the pecking order model does not explain why firms pay dividends and how it impacts capital structure. When firms choose to pay dividend, it impacts on the payments of debtholders. When firms use excess cash in paying dividends then there is a chance that dividend payment activity might put a constrain on the regular debt payments to the debt holders. In this instance a negative relationship is expected between dividend and debt. Myers (1984) also posits that, in the short-term, dividends are (for unknown reasons) sticky, leaving variation in net cash flows to be absorbed largely by debt. Further, the dividend-paying firms should have more debt if they are viewed as less risky. However, firms with cash flows in excess of investments should pay the difference as dividends, and not rebalance each period by issuing debt. Dividend-paying firms are less risky (Easterbrook, 1984). Under the trade-off theory, less risky firms should use more debt since they have less chance of paying the deadweight bankruptcy costs. Secondly, Easterbrook (1984) argues that dividend-paying firms have lower agency costs of equity and this allows firms to raise more equity. If so, then dividend payers should have less leverage. Finally, dividend-paying firms are those that generate more cash from operations relative to their investment opportunities, and so they payout the difference. Such firms would be unlikely to raise more debt since that would incur the unnecessary transaction costs. No formal theory is found in the literature to suggest any difference of DCs' and MCs' dividend payments and their influence on capital structure. Therefore, it remains an empirical question.

3.4.4.2 Agency Theory

The agency costs associated with capital structure concern the conflicts of interest between managers, stockholders and bondholders.[22] The conflicts of interest arise because corporate decisions that increase the welfare of one of these groups often reduce the welfare of others. Jensen and Meckling (1976) use the agency framework to provide a positive analysis of the effects of conflicts of interest among stockholders, managers and bondholders on the investment and financing decisions of the firm. They argue that viewing the financial structure problem as one of determining the optimal quantities of debt versus equity is too narrow. Jensen and Meckling (1976) argue that the problem involves determining the optimal ownership structure of the firm including, the relative quantities of debt and equity held by managers and outsiders as well as the details of the debt (short-term, long-term, public, private, convertible, callable, and the covenants associated with each) and equity (common stock with unrestricted or restricted alienability, the allocation of voting rights and the impact of preferred stock and warrants). At its most general level, the capital structure problem involves the determination of the entire set of contracts amongst stockholders, bondholders and managers as well as other agents in the nexus of contracts, including customers, employees, lessors and insurers. Other

[22] Kraus and Litzenberger (1973), Scott (1977), Warner (1977), Smith and Warner (1979), Fama (1980), Titman (1984) and Gilson (1989).

researchers, for example, Galai and Masulis (1976) discuss claim dilution, Jensen and Meckling (1976) investigate asset substitution and Myers (1977) examines underinvestment, which are all related to the agency cost issue.

MCs are expected to have a higher agency cost of debt than DCs. Monitoring, bonding and auditing costs are agency-related and are higher for MCs because of the diversity of geographical locations, cultural differences, higher auditing costs, differing legal systems, and language differences. Additionally, these national differences increase the complexity of such standard tasks as generating multi-country financial statements, hiring multi-country auditors and/or multiple auditors, and completing consolidated balance and income statements (Burgman, 1996; Reeb, Sattar & Allee, 2001) and complexities of their operations as compared to DCs.[23] According to Wright, Madura and Wiant (2002), these costs are due to the distance and the difference in the corporate and national culture between the parent and the subsidiaries as well as the difference in the level of economic development between the parent and the subsidiary host countries. Hence debt providers will require higher returns to finance geographically diversified firms, which lead to an increase in the costs of debt for these firms and therefore a reduction in their leverage.[24] Therefore, it is expected that there will be a higher negative association between agency cost of debt and the leverage ratio for DCs and MCs.

3.4.4.2.1 Free Cash Flow

Free cash flow (FCF) has important implications for capital structure choice. FCF centres on the agency costs resulting from the separation of ownership and control and the incentives that managers have to pursue activities that are in the managers' interest, reducing the profitability of the firm for others. Jensen (1986) suggests that managers can limit the agency problems of FCF by issuing debt and paying the proceeds to the stockholders. Leverage restricts the use of

[23] Simunic (1980) documents a positive association between auditing fees and the degree of foreign involvement.

[24] On the other hand, firms diversifying their operations over many industries with non-perfectly correlated performance reach a higher stability of their cash flows which reduces their default risk (Bartov & Bodner, 1996; Chung, 1993).

internal finance generated by the firm by forcing managers to use FCF to meet their contractually-specified interest obligations.

Additional leverage leaves less FCF at the discretion of the managers at the same time that it increases the level of intensity at which the firm's activities are monitored. Thus, firms with large free cash flows are likely to have higher levels of debt. The association between debt and FCF has been empirically supported by the findings of Gardner and Trinca (1992), Agrawal and Narayanan (1994), Lowe, Naughton and Taylor (1994), Rajan and Zingales (1995), Jaggi and Gul (1999), Hirota (1999), Filbeck and Gorman (2000) and Hall, Hutchinson and Michaelas (2000). The theory further suggests that firms with large free cash flows will have higher levels of debt, especially when they have low growth opportunities.

According to Eckbo (1986), Mikkelson and Partch (1986) and Smith (1997), two possible reactions can be anticipated for transactions that change a firm's leverage. First, for leverage-increasing transactions that tend to reduce FCF, the expected market reaction to such announcements should be positive, on average. In such situations', managers are reducing free cash flows in a way that maximises shareholders wealth. Second, for leverage-increasing transactions that tend to put more cash in the hands of managers and increase FCF, the expected market reaction would be negative, on average. The costs described above are forms of agency costs which result from a conflict of interests between managers and stockholders. For MCs, the agency problem is more acute; even if managers at a MCs' headquarters can be given incentives to maximise shareholders' wealth, the managers of foreign subsidiaries may prefer to make decisions for their subsidiary that are not maximizing the value of MCs overall. As a result, the foreign subsidiary managers are not serving the interests of the shareholders. This type of free cash flow problem may be especially pronounced for MCs that conduct a high degree of foreign business (Wright, Madura & Wiant, 2002).

3.4.4.2.2 Growth

Growth opportunities give managers discretion in their choice of future investments. This increases the difficulty of managerial activity and raises the agency cost of debt, such as those associated with curbing the tendency for equity-controlled firms to affect wealth transfers from debt holders to shareholders by investing sub-optimally. Myers (1977) argues that the potential for shareholders to undertake actions contrary to the interests of debt holders (e.g. underinvestment or diversion of resources) is most extreme for companies whose value is predominantly accounted for by growth opportunities. Lenders may thus impose restrictions on lending to such companies. Growth companies may also be reluctant to take on debt, if high interest rates or restrictive covenants impose constraints on their future decision-making process. In support of these predictions, Barclay and Smith (1995), Chung (1993), Titman and Wessels (1988) and Rajan and Zingales (1995) all find a negative relationship between growth opportunities and debt levels.

Further, a negative relationship between debt and growth opportunities is also probable if growth opportunities are intangible assets, which are not collateralisable for the purpose of borrowing funds (Bradley, Jarrell & Kim, 1984; Kim and Sorenson, 1986; Titman & Wessels, 1988; Stulz, 1990). The negative relationship supports the agency hypothesis that growth opportunities allow greater discretion in investment decisions of the firm. Hence, a firm's borrowing capacity is limited to the extent that their assets are in the form of intangibles or unrealised growth opportunities. A number of studies find support for the negative influence; conversely, a number of other studies have found a positive dependence. These conflicting results may be due to the fact that the growth measure tends to pick up the positive dependence between leverage and tangibility.[25]

Recent empirical evidence indicates that firms with foreign operations have greater growth opportunities than firms with only domestic operations (Kim & Lyn, 1986; Titman and Wessels,

[25] For example, there is an indirect link between leverage and growth with firms borrowing against plant, machinery or other assets when they are required to expand to meet the increase in sales that accompany growth.

1988; Bodnar & Gentry, 1993). According to Myers (1977), a substantial part of the leverage of any DC or MC is accounted for by the present value of future growth opportunities. The value of future growth opportunities is realised as far as a firm can exploit imperfections in the product and capital markets. Based on this argument, MCs tend to be better positioned than DCs. The imperfection provides MCs an opportunity to realise monopoly rents as compared to DCs. As noted by Myers (1977), monopoly rents are reflected in the value of the firms' future growth opportunities. Therefore, MCs are expected to have higher future growth opportunities than DCs.

3.4.5 Other Issues

There are many factors that are potentially important in capital structure choice that do not fall into the traditional capital structure theory or the dynamic capital structure theory. These variables have been found to be significant in the determination of MCs' and DCs' capital structure. They include the type of industry in which the firm is involved, the time of the year effect and macroeconomic variables. These are discussed below.

3.4.5.1 Industry Effect

Harris and Raviv (1991) note that firms in a given industry will have similar debt ratios while debt ratios vary across industries. There are several reasons for thinking that the industry in which a firm operates will have a significant effect on its capital structure. The most basic facts concerning industry characteristics and capital structure are that firms within an industry are more similar than those in different industries, and that industry tends to retain its leverage ratio ranking over time (Bradley, Jarrell & Kim, 1984). The link between capital structure and industry may be related to the volatility of earnings. Firms in similar industries may face similar volatility of earnings, which ceteris paribus, dictates particular capital structures.

In addition to the industry link with earnings volatility, Hamada (1972), using industry membership as a proxy for risk class, found that leveraged beta values within different industries varied more than unleveraged beta values. He concluded that there is a relationship between the cost of equity and financial leverage. Schwartz and Aronson (1967) document a relationship between industry and capital structure across five industries. Harris and Raviv (1991) have summarised findings of four studies[26] which investigated debt ratios for selected industries. The results are in broad agreement and show that drugs, instruments, electronics and food industries have consistently high leverage since these industries are involved in product and research development. Moreover, regulated industries (telephone, electric and gas utilities and airlines) are among the most highly leveraged firms (Bradley, Jarrell & Kim, 1984). DeAngelo-Masulis (1980) and Masulis (1983) use the documentation of industry effect as one argument for the presence of an industry-related optimal capital structure and imply that it is the tax code and tax rate differences across industries that cause the inter-industry similarities in debt ratios.

3.4.5.2 Industry Median

In corporate finance theory, in addition to the above factors discussed, some researchers also recognise industry median as a powerful explanatory variable to explain the capital structure of any firm. Frank and Goyal (2004) argue that some excluded factors, or the factors which are sometimes hard to either quantify or measure, have their effects subsumed within the median industry factor; which is empirically the single most powerful factor. However, it does not have an agreed upon interpretation. Similarly, Mackay and Phillips (2003) provide a recent analysis of industry effects on leverage. Unfortunately, median industry leverage does not have a unique interpretation on its own but rather has associated links with some other familiar capital structure factors. Thus, industry median ratio will be used to control for direct industry impact on capital structure in addition to individual industry indicative variables.

[26] Bowen, Daly and Huber (1982), Bradley, Jarrell and Kim (1984), Long and Malitz (1985) and Kester (1986).

3.4.5.3 Time Factor

Capital structure does not stay constant over time (Bevan & Danbolt, 2002). Korajczyk and Levy (2003) suggest that, based on Ross's (1985) argument, firms whose earnings are highly correlated with the level of economic activity are likely to employ less debt in their capital structure. This rationale is lent support by the fact that the relative importance of various components of long-term debt-related factors changes considerably over time. For example, volatile interest rates would reduce the appeal of external borrowing (Doukas & Pantzalis, 2003). Wright (2004) provides a useful compilation of data about the U.S. corporate sector from 1900 onwards. He finds aggregate debt and aggregate equity both grow decade by decade. He also suggests while leverage fluctuated during 1900-2002, it stayed within rather narrow bounds. This is despite phenomenal changes in many features of the business environment during this period. Recently, Frank and Goyal (2005) found that there is a mild stability of leverage ratios over the last half century. They suggest debt neither vanishes from corporate accounts, nor does it explode to overwhelm equity, and therefore over long periods of time, aggregate leverage is stationary. In summary, it is not clear whether the effects of determinants on long-term debt are stable across time across countries between DCs and MCs. In any given country, the state of the economy does not stay constant indefinitely. As a result a firm's business operation and debt-financing policy is likely to vary to keep pace with the economy. During periods of economic recession, major investments that would require long term finance may be delayed or cancelled and this would push the long-term debt ratio down. Akhtar (2005) found that there is certainly a time impact on DCs' and MCs' capital structure. Therefore, in a long time-series data analysis, it is essential that we control for time effects and also investigate whether the time effect has any significant explanatory power regarding the variation in capital structure.

3.5 DATA AND METHODOLOGY

The data comprises a sample of both DCs and MCs listed on the Australian stock exchange in the past 10 years. To identify time-varying effects, a 10-year period has been selected ending in

2004. Data for the Australian DCs and MCs of this sample has been collected from the Osiris database and WRDS which has been described in the data section (Chapter 4). The sample comprises 2248 firms across all industrial sectors. I exclude banks, gold mining companies, finance companies and insurance companies from the sample because their operations and leverage are quite different from industrial companies. The market value of the shares of all companies in the sample comprising the All Ordinaries index is approximately 95%. Apart from the novel sample and distinction between domesticity and multinationality of sample firms, the method is novel in capital structure research. The sample is biased towards large publicly-listed companies, but is not unrepresentative of Australian equity market. The research design follows four steps. Firstly, the target level depends on the characteristics of the firms. Therefore, as the firm changes, so too will its desired leverage. This idea is captured in Model I by specifying the target as a function of the relevant firm characteristics:

$$\begin{aligned} LEVERAGE_{it} = {} & \beta_0 + \beta_1 DIVER_{it} + \beta_2 FX_{it} + \beta_3 PR_{it} + \beta_4 BPTCY_{it} + \beta_5 BETA_{it} \\ & + \beta_6 NDTS_{it} + \beta_7 ATR_{it} + \beta_8 SIZE_{it} + \beta_9 CVA_{it} + \beta_{10} AGE_{it} + \beta_{11} PROF_{it} \\ & + \beta_{12} DIVC_{it} + \beta_{13} FCF_{it} + \beta_{14} GROW\_MB_{it} + \varepsilon_{it} \end{aligned} \qquad \text{Model I}$$

The variables in the models were explained earlier in the data chapter. However, a brief description is given below:

DIVER	= Diversification
FX	= Foreign exchange risk
PR	= Political risk
BPTCY	= Bankruptcy cost
BETA	= Firm specific risk (De-geared beta)
NDTS	= Non-debt tax shield
ATR	= Average tax rate
SIZE	= Total assets
CVA	= Collateral value of assets
AGE	= Firm's age
PROF	= Profitability
DIVC	= Cash Dividend
FCF	= Free cash flow
GROW_MB	= Growth

In the second step, a pooled sample of MCs and DCs will be regressed using Model II. In Model II, an additional variable $MULT_{i,t}$ is introduced to capture the total effect of a firm's multinational impact which Model I failed to capture. Note that the depth of mutinationality, significance of additional financial variables (credit risk ($CR_{i,t}$) ratings, economic risk *($ER_{i,t}$)* ratings and financial risk *($FR_{i,t}$))*, influence of industries and time variation will be tested mainly using Model II with slight modification. This modified version of Model II will be reported and discussed when particular issue is analysed in the subsequent discussion of results.

$$\begin{aligned} LEVERAGE_{it} = {} & \beta_0 + \beta_1 MULT_{it} + \beta_2 DIVER_{it} + \beta_3 FX_{it} + \beta_4 PR_{it} + \beta_5 BPTCY_{it} \\ & + \beta_6 BETA_{it} + \beta_7 NDTS_{it} + \beta_8 ATR_{it} + \beta_9 SIZE_{it} + \beta_{10} CVA_{it} + \beta_{11} AGE_{it} \\ & + \beta_{12} PROF_{it} + \beta_{13} DIVC_{it} + \beta_{14} FCF_{it} + \beta_{15} GROW\_MB_{it} + \varepsilon_{it} \end{aligned} \qquad \text{Model II}$$

The third stage introduces interaction variables for multinationality on the determinants of international, trade-off and pecking order theory for identifying the significance difference of capital structure determinants of leverage for MCs relative to DCs. In other words, if any of the coefficients β_{16} to β_{29} are significant, then the associated variable is significantly explaining differences in capital structure between MCs and DCs.

$$\begin{aligned} LEVERAGE_{it} = {} & \beta_0 + \beta_1 MULT_{it} + \beta_2 DIVER_{it} + \beta_3 FX_{it} + \beta_4 PR_{it} + \beta_5 BPTCY_{it} \\ & + \beta_6 BETA_{it} + \beta_7 NDTS_{it} + \beta_8 ATR_{it} + \beta_9 SIZE_{it} + \beta_{10} CVA_{it} + \beta_{11} AGE_{it} \\ & + \beta_{12} PROF_{it} + \beta_{13} DIVC_{it} + \beta_{14} FCF_{it} + \beta_{15} GROW\_MB_{it} + + \beta_{16} M * DIVER_{it} \\ & + \beta_{17} M * FXRISK_{it} + \beta_{18} M * PRISK_{it} + \beta_{19} M * BPTCY_{it} + \beta_{20} M * BETA_{it} \\ & + \beta_{21} M * NDTS_{it} + \beta_{22} M * MTR_{it} + \beta_{23} M * SIZE_{it} + \beta_{24} M * CVA_{it} \\ & + \beta_{25} M * AGE_{it} + \beta_{26} M * PROF_{it} + \beta_{27} M * DIVC_{it} + \beta_{28} M * FCF_{it} \\ & + \beta_{29} M * GROW\_MB_{it} + \varepsilon_{it} \end{aligned} \qquad \text{Model III}$$

In the fourth stage, following Graham (1996), Fama and French (2002) and Flannery and Rangen (2006), Model IV will be utilised to capture the partial speed of adjustment costs for capital structure change and over time for both Australian DCs and MCs. There has never been any study done to observe any difference of partial speed of adjustment costs across DCs and MCs. $\Delta LEVERAGE_i$ is the difference or change of long-term debt between current year and previous year. L_{it}^* denotes the optimal leverage ratio of the i[th] firm in period t. L_{it}^* are the estimates of Model I. L_{it-1} is the target leverage level for previous year and v_{it} is the residuals of

Model IV. And the notation δ_1 indicates that when it equals zero then it reflects no adjustment to the target. If δ_1 falls between zero and one, then it reflects partial adjustment to the target due to positive costs of adjustment, and if it equates to one then it indicates a full adjustment to the target (adjustment is costless).

$$\Delta LEVERAGE_i = \delta_0 + \delta_1 (L_{it}^* - L_{it-1}) + v_{it} \qquad \text{Model IV}$$

3.6 Results and Discussion

Table 3.1 Panel A presents individual yearly long-term and short-term debt ratios (scaled by total assets) for Australian DCs and MCs while Table Panel B shows the univariate test of the mean difference across short-term, long-term and total debt. The test of the difference in mean leverage it shows that Australian MCs have higher short-term, long-term and total debt relative to DCs; however, statistically it is not significant. This result is consistent with Akhtar (2005). A further analysis of the difference in leverage will be examined later in a multivariate context after considering all the determinants discussed earlier. The slope coefficient of $MULT_{i,t}$ in the following multivariate regressions will capture this effect.

Table 3.1
Yearly debt ratios across DCs and MCs and univariate analysis

Panel (A)

Year	DCs-STD	MCs-STD	DCs-LTD	MCs-LTD
95	0.051	0.049	0.020	0.027
96	0.051	0.040	0.013	0.022
97	0.042	0.058	0.048	0.052
98	0.052	0.050	0.048	0.060
99	0.046	0.049	0.087	0.021
00	0.047	0.045	0.081	0.035
01	0.056	0.054	0.100	0.141
02	0.051	0.067	0.109	0.178
03	0.045	0.046	0.059	0.070
04	0.038	0.050	0.054	0.060

Panel (B)

	Short-term debt		Long-term debt		Total debt	
	Mean	t-test	Mean	t-test	Mean	t-test
DCs	0.040		0.066		0.106	0.123
MCs	0.041	**0.153**	0.074	**0.554**		**1.254**

The estimates of Model 1 are presented in Table 3.2. Generally, the results show that indicator variables measured the underlying attributes well. The direction of effect for each indicator variable is generally in accord with theoretical predictions and consistent with Akhtar (2005). The following Table 3.2 tests the capital structure theory on DCs and MCs independently by employing the traditional capital structure determinants and additional international capital structure determinants across three measures of long-term debt ratios (e.g. market value (*LTD_MV*) and book value (*LTD_BV*), total debt ratios (*LTD_BV*)), and short-term debt ratios (*STD_BV*). The adjusted R-suqared appears statistically in satisfactory level for long-term debt ratios as it ranges between 33% to 54%; however, this model fails to show a promising results for short-term debt.

The results show that *DIVER* coefficient for DCs is a significant determinant in explaining short-term debt ratio but not long-term debt ratio and total debt ratio. This indicates that short-term debt is positively and significantly (t=2.020) related to Australian DCs to geographical and industrial expansion. However, geographical and industrial expansion *(DIVER)* has significantly negative impact on MCs' long-term, short-term and total debt ratios. This indicates that Australian MCs are not achieving much benefit from international expansion specially when they raise debt in multiple countries. Further, it can also be argued that to raise debt in multiple countries by Australian MCs becomes relatively costly to finance any project expansion.

Foreign exchange rate risk (*FX*) and its impact on DCs' and MCs' capital structure is captured by the *FX* coefficient. The coefficient *FX* suggests that Australian DCs are exposed to currency risk fluctuations and subsequently it significantly decreases the ability to raise long-term debt, which is indicated by negative significant (t=-2.833, -3.303 and -3.068 across three long-term debt measurements) *FX* coefficients. However, foreign exchange risk does not have prominent effect in raising short-term debt in DCs' capital structure. The effect of exchange rate fluctuation in MCs' long-term and short-term debt remains insignificant which is consistent with Akhtar (2005).

The insignificant coefficient of political risk (*PR*) indicates that Australian DCs and MCs are operating in a safe domestic and international environment and, as a result, raising long-term debt and short-term debt are not a major issue to be concerned about in order to manage the capital structure. Alternatively, it may also suggest that the proxy we employed for political risk is not significantly related to the definitions of long-term debt we employed.

The support of the bankruptcy risk (*BPTCY*) hypothesis is found for both DCs' and MCs' book value of short-term debt; however, no significant support of bankruptcy costs is found for long-term debt. This result is inconsistent with the prior studies (Burgman, 1996; Akhtar, 2005). This might be due to the sample period we chose.

The sign of firm-specific risk (*BETA*) result is consistent with the theory and it shows that DCs and MCs both lower their debt capacity due to increased firm-specific risk; however, firm risk is generally not statistically significant for long term debt in DCs'; however, is significant for DCs' short-term debt (t=-2.540). MCs' short-term debt (t=-2.295).

Non-debt tax shield (*NDTS*) shows a significant positive relationship across three long-term debt ratio measurements (t=2.724; 3.125; and t=4.038). This result is inconsistent with previous literature (DeAngelo & Masulis, 1980). Average tax rate (*ATR*) has predicted sign and significant coefficient to explain DCs' short term debt ratios (t=1.651) and MCs' toptal debt ratios (t=1.655).

Table 3.2
Capital structure determinants for Australian DCs and MCs over 1995-2004

This table reports the results of Model I for Australian DCs and MCs. There are four dependent variables ($LEVERAGE_{i,t}$) takes the following four forms: $LTD\_MV_{i,t}$, $LTD\_BV_{i,t}$, $STD\_BV_{i,t}$ and $TOT\_LTD\_BV_{i,t}$ which are measured as book value of long-term debt divided by sum of book value of long-term debt and market value of equity; book value of long-term debt divided by book value of total assets; book value of short-term debt divided by book value of total assets; and book value of total debt divided by book value of total assets respectively. Fourteen independent variables are measured as: $DIVER_{i,t}$ – *diversification* is defined as the natural logarithm of total subsidiaries in home country and overseas countries. $FX_{i,t}$ – *foreign exchange risk is calculated by the ratio of foreign sales to total sales revenue.* $PR_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. $BPTCY_{i,t}$ - *bankruptcy risk* is measured as the standard deviation of last five years earnings volatility of firm's earnings before interest and taxes. $BETA_{i,t}$ – *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index. $ATX_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. $NDTS_{i,t}$ – *non-debt tax shield* is calculated as depreciation expense to total assets. $SIZE_{i,t}$ – *size* variable is measured as natural logarithm of total assets. $CVA_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. AGE – *age* is defined as the natural logarithm of the number of years since it has been incorporated until 2004. $PROF_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. $DIVC_{i,t}$ – *dividend payment* is a ratio of cash dividend paid to net income (note losses made any year has been deleted from sample). $FCF_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. $GROW\_MB_{i,t}$ – *growth* is the market value of equity over total assets.

$$LEVERAGE_{it} = \beta_0 + \beta_1 DIVER_{it} + \beta_2 FXRISK_{it} + \beta_3 PRISK_{it} + \beta_4 BPTCY_{it} + \beta_5 BETA_{it} + \beta_6 NDTS_{it} + \beta_7 ATR_{it} + \beta_8 SIZE_{it} + \beta_9 CVA_{it} + \beta_{10} AGE_{it} + \beta_{11} PROF_{it} + \beta_{12} DIVC_{it} + \beta_{13} FCF_{it} + \beta_{14} GROW\_MB_{it} + \varepsilon_{it}$$

	DCs								MCs							
	$LTD\_MV_{i,t}$		$LTD\_BV_{i,t}$		$STD\_BV_{i,t}$		$TOT\_LTD\_BV_{i,t}$		$LTD\_MV_{i,t}$		$LTD\_BV_{i,t}$		$STD\_BV_{i,t}$		$TOT\_LTD\_BV_{i,t}$	
Variables	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.164	-0.824	-0.106	-0.779	0.053	1.075	-0.098	-0.671	-0.546	**-1.938**[c]	-0.299	-1.348	0.093	1.493	-0.295	-1.369
$DIVER_{i,t}$	0.007	0.583	0.014	1.457	0.006	**2.020**[b]	0.013	1.238	-0.022	**-1.816**[a]	-0.016	**-2.130**[b]	-0.009	**-4.229**[a]	-0.024	**-3.378**[a]
$FX_{i,t}$	-0.119	**-2.833**[a]	-0.102	**-3.303**[a]	0.011	1.002	-0.100	**-3.068**[a]	-0.020	-0.427	-0.024	-0.764	0.002	0.182	-0.041	-1.305
$PR_{i,t}$	0.002	0.804	0.001	0.342	0.000	-0.203	0.000	0.277	0.005	1.441	0.002	0.689	0.000	-0.709	0.002	0.841
$BPTCY_{i,t}$	0.000	0.958	0.000	0.087	0.000	**-2.657**[a]	0.000	-0.369	-0.001	-0.951	0.000	-0.389	-0.001	**-3.626**[a]	-0.001	-1.097
$BETA_{i,t}$	-0.141	-1.107	-0.080	-0.932	-0.087	**-2.540**[b]	-0.110	-1.161	-0.338	**-2.295**[b]	-0.112	-1.261	-0.039	-1.121	-0.082	-0.874
$ATR_{i,t}$	-0.533	**-2.336**[b]	-0.238	-1.457	0.148	**1.651**[c]	-0.094	-0.530	-0.309	-0.739	0.005	0.014	0.220	0.661	0.526	**1.655**[c]
$NDTS_{i,t}$	0.003	**2.724**[b]	0.004	**3.125**[a]	0.001	0.950	0.004	**4.038**[a]	-0.001	-0.125	-0.004	-0.486	0.001	0.199	-0.004	-0.449
$SIZE_{i,t}$	0.073	**8.415**[a]	0.053	**7.663**[a]	0.000	0.220	0.063	**8.419**[a]	0.061	**3.451**[a]	0.049	**4.419**[a]	-0.001	-0.499	0.040	**3.413**[a]
$CVA_{i,t}$	0.100	**2.123**[b]	0.116	**3.220**[a]	-0.023	**-2.130**[b]	0.090	**2.414**[b]	-0.033	-0.416	0.002	0.048	-0.012	-0.594	0.017	0.309
$AGE_{i,t}$	-0.057	**-4.021**[a]	-0.038	**-3.864**[a]	0.003	1.340	-0.037	**-3.305**[a]	0.030	1.045	0.024	1.365	0.008	**2.255**[b]	0.036	**2.108**[a]
$PROF_{i,t}$	-0.066	**-2.819**[a]	-0.034	**-1.729**[c]	0.004	0.274	-0.044	**-1.775**[c]	-0.026	-0.347	-0.063	-0.882	0.025	1.027	0.002	0.024
$DIVC_{i,t}$	-0.092	**-2.560**[b]	-0.073	**-2.701**[b]	-0.005	-0.602	-0.104	**-3.657**[a]	-0.127	**-2.134**[b]	-0.083	**-2.004**[b]	0.004	0.288	-0.067	-1.560
$FCF_{i,t}$	-0.040	**-2.052**[b]	-0.048	**-2.454**[b]	-0.012	-1.640	-0.046	**-2.345**[b]	-0.180	**-3.526**[a]	-0.101	**-2.861**[a]	-0.011	-1.147	-0.106	**-3.188**[a]
$GROW\_MB_{i,t}$	-0.016	**-2.900**[a]	-0.005	**-1.911**[c]	-0.003	**-2.325**[b]	-0.008	**-2.711**[b]	-0.004	**-2.211**[b]	-0.001	-1.257	0.002	**3.159**[a]	0.001	0.543
Adj R Sqr	0.330		0.450		0.046		0.447		0.421		0.524		0.063		0.524	
No. Obs	994		994		994		994		1254		1254		1254		1254	

SIZE coefficient is positively related to both market value and book value of long-term leverage and book value of total leverage measure for both DCs (t=8.415; t=7.663 and t=8.419) and MCs (t=3.451; t=4.419 and 3.413). These results are consistent with the trade-off theory of size argument that larger firms have higher leverage as they are often thought to be less volatile which leads them to be less prone to asymmetric information and hence more debt and less equity (Scott & Martin, 1975; Agrawal & Nagarajan, 1990; Cooke, 2001; Fan, Titman & Twite, 2003). This is not the case when debt is defined as short term debt (scaled with total assets) as it is found to be insignificant.

The significant coefficient *CVA* for DCs supports the trade-off theory of collateral value of assets that a firm with more assets can pledge them to support higher debt capacity for long-term (t=2.123 and t=3.220) and total debt (t=2.414). However, the support of pecking order theory is found in DCs' short-term debt as it is negative and significant (t=-2.130), stating that a firm with more assets has a greater worry about adverse selection on those assets on a short term period. Interestingly, *CVA* does not appear to explain any variation of market value or book value of long-term leverage or short-term leverage for Australian MCs.

The negative and significant coefficient on the proxy for firm age (*AGE*) for DCs both long-term and short-term and total debt (t=-4.021; t=-3.864 and t=-3.305) suggest that, as DCs matures over time, they reduce leverage. Interestingly, the effect of *AGE* has significant positive impact on the short-term debt (t=2.255) of Australian MCs' suggesting the maturity of multinational firms requires the usage of more short-term debt to meet any financial constraints. The *AGE* also show a significant positive relationship with total debt for MCs'. The results for DCs suggest that as the Australian DCs matures, they no longer require long term debt while the results for MCs is consistent to previous literature. MCs' results suggest that mature firms have a good reputation in debt markets and consequently face lower agency costs of debt. A possible explanation can be that Australian MCs are mature enough and exploit their creditworthiness in the market.

The coefficient of (*PROF*) explains the variation of book value of debt (scaled by book value of debt and market value of equity) at 1% significance level (t=2.819), supporting the pecking order theory of Myers (1977) which predicts that leverage will be negatively related to profitability for DCs' and this is consistent with Allen (1991), Cassar and Holmes (2003) and Akhtar (2005) among others. This suggests that Australian DCs avoid costly external financing and will rather take the opportunity to use internal financing for any future investment projects. However, neither long-term or short-term market value nor book value of leverage indicates any significant determination of Australian MCs. Possible explanation for this may be explained by the argument that Frank and Goyal (2004) put forward that the importance of profitability is declining every decade. Further, Frank and Goyal (2003) argue that during the 1980s and 1990s, equity markets were more willing to fund currently unprofitable firms with good growth prospects. Given that Australian MCs during the 1990s were in a rather aggressive growing stage (World Investment Report, 2005), the above argument is clearly supporting the insignificance of profitability factors for MCs.

The evidence of significant negative cash dividend payout ratios coefficient *DIVC* is found in DCs (t=-2.560; t=-2.701 and t=-3.657) across long-term debt ratios and total debt ratios. Similarly, for MCs, the significant negative coefficient is found for both long-term measurements of debt (t=-2.134 and t=-2.004). These results are consistent with Myers (1984).

Agency costs of free cash flow (*FCF*) are less severe for high growth DCs and MCs (Jensen 1986) but this again leads to the prediction that high growth firms should have less debt. By contrast, the significant short-term debt of MCs (t=3.159) supports the pecking order theory that the more profitable MCs are, the less debt they use as they can finance projects from internally-generated funds.

The growth variable (*GROW_MB*) is also significant and negatively related to long-term market value of leverage and short-term book value of leverage across DCs (t=-2.900 and t=-2.325) and MCs. This suggests that there is a need to retain growth options, as in Goyal, Lehn and Racic

(2002). This interpretation is consistent with static trade-off theory where it predicts a negative relation between leverage and growth. This states that high growth DCs and MCs loose more of their value when they go into distress. Several agency theories also predict a negative relation between leverage and growth. For example, the underinvestment problem is more severe for high growth Australian DCs and MCs as the growth opportunities lead these firms to prefer less debt. The underinvestment problem arises because DCs and MCs with risky debt have an incentive to under-invest in positive net present value projects since shareholders bear the entire costs of the project but receive only a fraction of the increase in firm value; part of it goes to debt holders (Myers 1977).

Another explanation is the asset substitution problem. It is also more severe for high growth Australian DCs and MCs. In high growth firms, it is easier for stockholders to increase project risk and it is harder for debt-holders to detect such changes. Thus, debt is more costly for firms with high growth opportunities.

The above determinants are also tested on a *change* of long-term debt ratio and short-term debt ratio with the difference of current year and previous year and the results of each explanatory factor stay closely similar to the debt *level* determinants. In order to avoid the repetition of the capital structure determinants theory discussed earlier, the results obtained on the change of long-term debt are not reported.

The following Table 3.3 attempts to respond whether a firm being a multinational coporation has any explanatory power to explicate the variation of capital structure across firms. This table documents the results of regression analysis of Model II. A log likelihood ratio test on *MULT* variable is conducted to test the whether inclusion of this variable has any significant impact in the model. The result indicates that multinationality *MULT* is a significant variable in explaining capital structure using log likelihood ratio test (LR F-stat=11.25 and t=3.77). The positive sign of the coefficient of 0.06 suggests that MCs have significantly higher debt than DCs, confirming the univariate results on leverage (see Table 3.1). The multiple regression results in Table 3.3 show that multinationality of a firm has significant negative attribute to enable MCs to hold less long-term market value of debt and this is indicated by the combined effect of intercept (*C)* and *MULT* coefficient estimates. However, multinationality issue matters significantly (t=2.403) for long-term book value of debt and total debt ((t=2.615). Mutinationality is insignificant in explaining short-term book value of debt for Australian firms. This result suggests that the investors and debt holders take the multinationality factor into account when they value a firm's debt ratios, to be aware of the risks and benefit it may have in the capital structure decision.

Table 3.3

Capital structure determinants and controlling for multinationality in Australian firms

This table reports the results of Model II for Australian firms. There are four dependent variables and fourteen independent variables. The dependent variables (*LEVERAGE* $_{i,t}$) takes the following four forms: *LTD_MV* $_{i,t}$, *LTD_BV* $_{i,t}$, *STD_BV* $_{i,t}$ and *TOT_LTD_BV* $_{i,t}$ which are measured as book value of long-term debt divided by sum of book value of long-term debt and market value of equity; book value of long-term debt divided by book value of total assets; book value of short-term debt divided by book value of total assets; and book value of total debt divided by book value of total assets respectively. Fifteen independent variables are measured as: *MULT* $_{i,t}$ - *multinationality* takes a value of 1 (unity) if the corporation is multinational corporations otherwise it is 0 (domestic corporations). *DIVER* $_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. *FX* $_{i,t}$ – *foreign exchange risk* is calculated by the ratio of foreign sales to total sales revenue. *PR* $_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. *BPTCY* $_{i,t}$ - *bankruptcy risk* is measured as the standard deviation of last five years earrings volatility of firm's earnings before interest and taxes. *BETA* $_{i,t}$ – *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index. *ATX* $_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. *NDTS* $_{i,t}$ – *non-debt tax shield* is calculated as depreciation expense to total assets. *SIZE* $_{i,t}$ – *size* variable is measured as natural logarithm of total assets. *CVA* $_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. *AGE* $_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until 2004. *PROF* $_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. *DIVC* $_{i,t}$ – *dividend payment* is a ratio of cash dividend paid to net income (note losses made any year has been deleted from sample). *FCF* $_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. *GROW_MB* $_{i,t}$ – *growth* is the market value of equity over total assets.

$$
\begin{aligned}
LEVERAGE_{it} = {} & \beta_0 + \beta_1 MULT_{it} + \beta_2 DIVER_{it} + \beta_3 FX_{it} + \beta_4 PR_{it} + \beta_5 BPTCY_{it} \\
& + \beta_6 BETA_{it} + \beta_7 NDTS_{it} + \beta_8 ATR_{it} + \beta_9 SIZE_{it} + \beta_{10} CVA_{it} + \beta_{11} AGE_{it} \\
& + \beta_{12} PROF_{it} + \beta_{13} DIVC_{it} + \beta_{14} FCF_{it} + \beta_{15} GROW\_MB_{it} + \varepsilon_{it}
\end{aligned}
$$

	LTD_MV $_{i,t}$		LTD_BV $_{i,t}$		STD_BV $_{i,t}$		TOT_LTD_BV $_{i,t}$	
Variables	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.287	**-1.749** [c]	-0.159	-1.281	0.067	1.633	-0.148	-1.159
MULT $_{i,t}$	0.038	1.520	0.038	**2.403** [b]	0.005	0.820	0.048	**2.615** [b]
DIVER $_{i,t}$	-0.014	-1.590	-0.008	-1.328	-0.002	-1.364	-0.012	**-1.728** [c]
FX $_{i,t}$	-0.094	**-3.065** [a]	-0.079	**-3.843** [a]	0.003	0.394	-0.091	**-3.919** [a]
PR $_{i,t}$	0.003	1.418	0.001	0.457	0.000	-1.045	0.001	0.385
BPTCY $_{i,t}$	0.000	1.105	0.000	1.178	0.000	**-3.628** [a]	0.000	-0.009
BETA $_{i,t}$	-0.209	**-2.293** [a]	-0.055	-0.951	-0.052	**-2.306** [b]	-0.068	-1.051
ATR $_{i,t}$	-0.270	-1.056	-0.041	-0.166	0.185	1.232	0.212	0.940
NDTS $_{i,t}$	0.003	**2.226** [b]	0.004	**4.334** [a]	0.001	0.929	0.004	**3.853** [a]
SIZE $_{i,t}$	0.074	**9.749** [a]	0.056	**11.090** [a]	0.001	0.538	0.060	**10.699** [a]
CVA $_{i,t}$	0.023	0.601	0.054	**1.993** [c]	-0.021	**-2.021** [b]	0.022	0.752
AGE $_{i,t}$	-0.035	**-2.907** [b]	-0.022	**-2.627** [b]	0.006	**3.265** [a]	-0.016	**-1.738** [a]
PROF $_{i,t}$	-0.050	**-1.866** [c]	-0.030	-1.370	0.008	0.627	-0.027	-0.947
DIVC $_{i,t}$	-0.093	**-3.208** [a]	-0.075	**-3.839** [b]	-0.001	-0.167	-0.086	**-3.948** [a]

FCF i,t	-0.054	**-2.431**[b]	-0.055	**-2.648**[b]	-0.012	**-1.896**[c]	-0.055	**-2.616**[b]
GROW_MB i,t	-0.009	**-3.650**[a]	-0.002	**-1.989**[b]	0.000	0.331	-0.003	**-1.815**[c]
Adj R Sqr	0.309		0.439		0.040		0.414	
No. Obs	2248		2248		2248		2248	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

As discussed in the methodology, Table 3.4 further extends Model II and incorporates two additional factors - depth (extent of international involvement) and breadth (extent of international dispersion) which is measured as FX^2 and $DIVER^2$ to investigate if there is an optimal level for Australian firms to be disadvantaged of overseas sales, and number of subsidiaries especially when firms' overseas sales and number of subsidiaries increase continuously. The results do not suggest any significant optimal level of the volume of foreign sales or numbers of subsidiaries and their relationship with any types of debt ratios. However, the explanatory power of this model appears plausible.

Table 3.4
Optimal level of foreign involvement in Australian firms

This table reports the variables and expected signs of the capital structure determinants. There are four dependent variables and fourteen independent variables. The dependent variables are measured as long-term debt to long-term debt and market value of assets which is indicated by $LTD\_MV_{i,t}$. $LTD\_BV_{i,t}$, $STD\_BV_{i,t}$ and $TOT\_LTD\_BV_{i,t}$ are measured as long-term debt, short-term and total debt to total book value of asset respectively. Sixteen independent variables are measured as: $MULT_{i,t}$ - *multinationality* takes a value of 1 (unity) if the corporation is multinational corporations otherwise it is 0 (domestic corporations). $DIVER_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. $FX_{i,t}$ – *foreign exchange risk* is calculated by the ratio of foreign sales to total sales revenue. FX^2 – *multinationality concavity* is measured as square of foreign sales to total sales. $PR_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. $BPTCY_{i,t}$ - *bankruptcy risk* is measured as the standard deviation of last five years earrings volatility of firm's earnings before interest and taxes. $BETA_{i,t}$ - *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index. $ATX_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. $NDTS_{i,t}$ – *non-debt tax shield* is calculated as depreciation expense to total assets. $SIZE_{i,t}$ – *size* variable is measured as natural logarithm of total assets. $CVA_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. $AGE_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until 2004. $PROF_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. $DIVC_{i,t}$ – *dividend payment* is a ratio of cash dividend paid to net income (note losses made any year has been deleted from sample). $FCF_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. $GROW\_MB_{i,t}$ – *growth* is the market value of equity over total assets.

$$\begin{aligned} LEVERAGE_{it} = {} & \beta_0 + \beta_1 MULT_{it} + \beta_2 DIVER_{it} + \beta_3 (DIVER_{it})^2 + \beta_4 FXRISK_{it} + \beta_5 (FXRISK)^2_{it} \\ & + \beta_6 PRISK_{it} + \beta_7 BPTCY_{it} + \beta_8 BETA_{it} + \beta_9 NDTS_{it} + \beta_{10} ATR_{it} + \beta_{11} SIZE_{it} \\ & + \beta_{12} CVA_{it} + \beta_{13} AGE_{it} + \beta_{14} PROF_{it} + \beta_{15} DIVC_{it} + \beta_{16} FCF_{it} + \beta_{17} GROW\_MB_{it} + \varepsilon \end{aligned}$$

	LTD_MV *i,t*		LTD_BV *i,t*		STD_BV *i,t*		TOT_LTD_BV *i,t*	
Variables	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.25	-1.56	-0.156	-1.264	0.070	**1.658**[c]	-0.145	-1.134
MULT i,t	0.04	1.60	0.035	**2.298**[b]	0.004	0.588	0.046	**2.444**[b]
DIVER i,t	-0.02	-1.07	-0.008	-1.316	-0.002	-1.282	-0.012	**-1.709**[c]
DIVER² i,t	0.00	0.54	-0.005	-1.416	-0.103	-1.222	-0.011	-1.569
FX i,t	-0.021	-0.19	-0.016	-0.239	0.020	0.712	-0.012	-0.138
FX² i,t	-0.082	-0.71	-0.072	-1.029	-0.021	-0.675	-0.091	-1.054
PR i,t	0.001	1.30	0.001	0.400	0.000	-1.102	0.000	0.314
BPTCY i,t	0.001	1.13	0.000	1.244	0.000	**-3.637**[a]	0.000	0.126
BETA i,t	-0.202	**-2.03**[a]	-0.043	-0.739	-0.050	**-2.243**[b]	-0.054	-0.828

$ATR_{i,t}$	-0.281	-1.14	-0.045	-0.187	0.184	1.223	0.206	0.910
$NDTS_{i,t}$	0.001	**2.18**[a]	0.003	**4.166**[a]	0.001	0.872	0.004	**3.578**[a]
$SIZE_{i,t}$	0.074	**9.68**[a]	0.056	**11.161**[a]	0.001	0.508	0.060	**10.787**[a]
$CVA_{i,t}$	0.031	0.67	0.057	**2.110**[b]	-0.021	**-1.911**[b]	0.026	0.884
$AGE_{i,t}$	-0.033	**-2.84**[a]	-0.022	**-2.631**[b]	0.006	**3.156**[a]	-0.016	**-1.738**[c]
$PROF_{i,t}$	-0.052	**-1.74**	-0.029	-1.349	0.009	0.653	-0.025	-0.914
$DIVC_{i,t}$	-0.090	**-3.24**[a]	-0.075	**-3.887**[a]	-0.002	-0.202	-0.086	**-3.992**[a]
$FCF_{i,t}$	-0.051	**-2.36**[a]	-0.055	**-2.652**[b]	-0.012	**-1.890**[c]	-0.055	**-2.623**[b]
$GROW\_MB_{i,t}$	-0.011	**-3.43**[a]	-0.002	**-1.796**[b]	0.000	0.366	-0.002	-1.611
Adj R Sqr	0.335		0.460		0.051		0.436	
No. Obs	2248		2248		2248		2248	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

To help explain the difference in leverage between MCs and DCs and to assess the impact of individual economic determinants on MCs, Model III is estimated. Table 3.5 presents the effect of interaction variables to explain the difference of capital structure determinants across DCs and MCs. The adjusted R-squared range is 11% to 57% across different definition of leverage. Book value of long-term leverage definition fits the model best and is indicated by higher R-square of 51.3%. When the dependent variable is used as short-term book value of debt, the model explains quite poorly (Adjusted R-squared=11.3%) and this is not surprising as the theory developed on capital structure is mainly based on long-term debt not short-term debt.

There is a significant difference in geographical diversification (*M_DIVER*) between DCs and MCs towards their book value of long-term and short-term debt ratio. Results suggest that as the Australian MCs become more geographically dispersed, it significantly decreases the ability of short-term debt (t=-4.188) and long-term book value (t=-2.463) of debt capacity in their capital structure. These results suggest that Australian MCs may not be capturing the theoretically predicted benefits of the internalization associated with economies of scale, scope and wider learning opportunities (Barlett and Goshal, 1995). Alternatively, coordination costs involved in raising debt in different geographical locations may outweigh the benefits.

Table 3.5
Interaction effect for Australian DCs and MCs capital structure determinants

This table reports the variables and expected signs of the capital structure determinants. There are four dependent variables and fourteen independent variables. There are four dependent variables and fourteen independent variables. $LEVERAGE_{i,t}$ takes the following four forms: $LTD\_MV_{i,t}$, $LTD\_BV_{i,t}$, $STD\_BV_{i,t}$ and $TOT\_LTD\_BV_{i,t}$ which are measured as book value of long-term debt divided by sum of book value of long-term debt and market value of equity; book value of long-term debt divided by book value of total assets; book value of short-term debt divided by book value of total assets; and book value of total debt divided by book value of total assets respectively. Sixteen independent variables are measured as: $MULT_{i,t}$ - *multinationality* takes a value of 1 (unity) if the corporation is multinational corporations otherwise it is 0 (domestic corporations). $DIVER_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. $FX_{i,t}$ – *foreign exchange risk* is calculated by the ratio of foreign sales to total sales revenue. FX^2 – *multinationality concavity* is measured as square of foreign sales to total sales. $PR_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. $BPTCY_{i,t}$ - *bankruptcy risk* is measured as the standard deviation of last five years earrings volatility of firm's earnings before interest and taxes. $BETA_{i,t}$ - *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index. $ATX_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. $NDTS_{i,t}$ – *non-debt tax shield* is calculated as depreciation expense to total assets. $SIZE_{i,t}$ – *size* variable is measured as natural logarithm of total assets. $CVA_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. $AGE_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until 2004. $PROF_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. $DIV_{i\,i,t}$ – *dividend payment* is a ratio of cash dividend paid to net income (note losses made any year has been deleted from sample). $FCF_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. $GROW\_MB_{i,t}$ – *growth* is the market value of equity over total assets. The interaction dummy variable is used to find the significant difference of the common variables. For example, $M\_FX_{i,t}$ takes the actual value of MCs while it is 0 for the DCs.

$$
\begin{aligned}
LEVERAGE_{it} = {} & \beta_0 + \beta_1 MULT_{it} + \beta_2 DIVER_{it} + \beta_3 FXRISK_{it} + \beta_4 PRISK_{it} + \beta_5 BPTCY_{it} \\
& + \beta_6 BETA_{it} + \beta_7 NDTS_{it} + \beta_8 ATR_{it} + \beta_9 SIZE_{it} + \beta_{10} CVA_{it} + \beta_{11} AGE_{it} \\
& + \beta_{12} PROF_{it} + \beta_{13} DIV_{it} + \beta_{14} FCF_{it} + \beta_{15} GROW\_MB_{it} + + \beta_{16} M * DIVER_{it} \\
& + \beta_{17} M * FXRISK_{it} + \beta_{18} M * PRISK_{it} + \beta_{19} M * BPTCY_{it} + \beta_{20} M * BETA_{it} \\
& + \beta_{21} M * NDTS_{it} + \beta_{22} M * ATR_{it} + \beta_{23} M * SIZE_{it} + \beta_{24} M * CVA_{it} \\
& + \beta_{25} M * AGE_{it} + \beta_{26} M * PROF_{it} + \beta_{27} M * DIVC_{it} + \beta_{28} M * FCF_{it} \\
& + \beta_{29} M * GROW\_MB_{it} + \varepsilon_{it}
\end{aligned}
$$

	$LTD\_MV_{i,t}$		$LTD\_BV_{i,t}$		$STD\_BV_{i,t}$		$TOT\_LTD\_BV_{i,t}$	
Variables	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.164	-0.816	-0.106	-0.771	0.053	1.073	-0.098	-0.664
MULT i,t	-0.382	-1.122	-0.193	-0.754	0.040	0.505	-0.197	-0.770
DIVER i,t	0.007	0.576	0.014	1.442	0.006	**2.016**^{b}	0.013	1.225
FX i,t	-0.119	**-2.803**^{a}	-0.102	**-3.268**^{a}	0.011	1.000	-0.100	**-3.035**^{a}
PR i,t	0.002	0.796	0.001	0.338	0.000	-0.202	0.000	0.274
BPTCY i,t	0.000	0.947	0.000	0.086	0.000	**-2.651**^{b}	0.000	-0.365
BETA i,t	-0.141	-1.095	-0.080	-0.922	-0.087	**-2.535**^{b}	-0.110	-1.148
ATR i,t	-0.533	**-2.311**^{b}	-0.238	-1.442	0.148	1.648	-0.094	-0.525
NDTS i,t	0.003	**2.694**^{b}	0.004	**3.092**^{b}	0.001	0.948	0.004	**3.995**^{a}
SIZE i,t	0.073	**8.325**^{a}	0.053	**7.580**^{a}	0.000	0.220	0.063	**8.328**^{a}
CVA i,t	0.100	**2.100**^{b}	0.116	**3.185**^{a}	-0.023	**-2.126**^{b}	0.090	**2.388**^{b}
AGE i,t	-0.057	**-3.978**^{a}	-0.038	**-3.822**^{a}	0.003	1.337	-0.037	**-3.270**^{a}
PROF i,t	-0.066	**-2.789**^{b}	-0.034	**-1.710**^{c}	0.004	0.274	-0.044	**-1.756**^{c}
DIVC i,t	-0.092	**-2.533**^{b}	-0.073	**-2.672**^{b}	-0.005	-0.601	-0.104	**-3.618**^{a}
FCF i,t	-0.040	**-2.030**^{b}	-0.048	**-2.428**^{b}	-0.012	-1.636	-0.046	**-2.320**^{b}
GROW_MB i,t	-0.016	**-2.869**^{b}	-0.005	**-1.890**^{c}	-0.003	**-2.320**^{b}	-0.008	**-2.682**^{b}
M_DIVER i,t	-0.029	**-1.738**^{c}	-0.029	**-2.463**^{b}	-0.015	**-4.188**^{a}	-0.037	**-2.897**^{a}
M_FX i,t	0.100	1.603	0.078	**1.795**^{c}	-0.009	-0.626	0.060	1.332
M_PR i,t	0.003	0.744	0.001	0.406	0.000	-0.435	0.002	0.553
M_BPTCY i,t	-0.001	-1.183	0.000	-0.408	-0.001	**-2.954**^{a}	-0.001	-1.009
M_BETA i,t	-0.197	-1.021	-0.032	-0.265	0.048	0.985	0.028	0.212
M_ATR i,t	0.223	0.477	0.243	0.609	0.072	0.210	0.620	**1.733**^{c}
M_NDTS i,t	-0.004	-0.470	-0.008	-0.995	0.000	0.066	-0.008	-0.900
M_SIZE i,t	-0.012	-0.614	-0.004	-0.337	-0.002	-0.527	-0.024	**-1.747**^{c}
M_CVA i,t	-0.134	-1.464	-0.113	**-1.879**^{c}	0.011	0.486	-0.073	-1.126
M_AGE i,t	0.087	**2.760**^{a}	0.062	**3.144**^{a}	0.004	0.974	0.073	**3.621**^{a}
M_PROF i,t	0.040	0.520	-0.029	-0.403	0.021	0.757	0.046	0.614
M_DIVC i,t	-0.035	-0.514	-0.010	-0.214	0.009	0.587	0.038	0.743
M_FCF i,t	-0.140	**-2.620**^{b}	-0.052	-1.319	0.001	0.065	-0.060	-1.572
M_GROW_MB i,t	0.012	**1.976**^{c}	0.003	1.205	0.005	**3.403**^{a}	0.009	**2.668**^{b}
Adj R Sqr	0.402		0.513		0.113		0.570	
No. Obs	2248		2248		2248		2248	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

The interaction coefficient of foreign exchange risk *M_FX* produces, interestingly, a mix of results in terms of its significant impact across different definition of debt ratio. It appears that MCs encounter significantly higher foreign exchange risk (t=1.795) exposure for their long-term debt (scaled by book value of total assets) and, given the fact that the coefficient is positively different than DCs, it suggests that foreign exchange exposure has positive impact. This mean that when Australian MCs raises debt in multiple foreign countries, it takes advantage of the exchange rate moving in their favour when it comes to pay pack to the debt holders. The long-term debt ratio (scaled by book value of long-term debt and market value of equity) also suggests similar arguments; however, the relationship is not statistically significant. Interestingly, the foreign exchange exposure of MCs for short-term debt does not move in their favour and therefore the relationship is negative, implying as foreign exchange risk increases, it disfavours raising short-term debt in MCs' capital structure than DCs'.

The significant negative (t=-2.954) interaction coefficient of MCs firm risk (*M_BPTCY*) indicates that MCs' bankruptcy risk is a significant determinant of short-term debt. That is, if there is an increase in firm-specific risk in general, it introduces a greater negative shock in the MCs short-term debt which in turn reduces the short-term fundraising capacity in MCs' capital structure. Impact of bankruptcy risk in MCs does have negative impact in their long-term debt; however, the relationship remains insignificant across different long-term debt definitions.

No apparent significant relationship is observed in the interaction variable of average tax ratios (*M_ATR*) between long-term and short-term debt. However, it appears that MCs' *ATR* has significantly different implication for total debt (t=1.733). Results show that the benefit of higher average tax rate for Australian MCs is significantly increase their total debt capacity relative to their counterpart DCs.

Similarly, the significant (t=-1.717) interaction of size variable (*M_SIZE*) on total debt suggests that as MCs become larger due to increase in assets, it has significant negative impact on total book value of debt. This indicates that as MCs become larger and when they require any external funds for financing purposes, then issuing debt becomes costlier than issuing equity.

M_CVA representing the slope difference of collateral value of assets in explaining the MCs' capital structure indicates that it has significant negative impact (t=-1.879) in explaining the book value of long-term debt but not market value of long-term debt or book value of short-term debt.

The interaction variable of age variable (*M_AGE*) shows that there is a significant difference in explaining MCs' long-term debt ratio. This suggests that the attribute of MCs' maturity enables them to hold significantly higher debt (t=2.760; t=3.144) level relative to DCs regardless of how long-term debt ratios is defined at 1% significance. This age also conveys a signal of credit ratings, which means that over years as Australian MCs increase their creditworthiness in the debt market, it prepares MCs to afford higher long-term debt in their capital structure.

The insignificant interaction variable on profitability (*M_PROF*) and dividend payments (*M_DIVC*) suggests the issue of pecking order theory of financing internally and raising debt to meet the required level of dividend payment to keep a smooth dividend payment policy are not significantly different between DCs and MCs. Consequently, these two interaction variables do not have any significant explanatory influence to explicate the difference of capital structure across DCs and MCs.

While the results show the free cash flow of agency costs of MCs is significantly different (t=-2.620) from DCs counterparts, it only matters in explaining market value of MCs' debt. It indicates that as the free cash flow or excess cash increase, it increases the agency problem of debt and therefore minimises the long-term debt (scaled by sum of long-term debt and market value of equity) capacity.

The interaction of *(M_GROW_MB)* coefficient shows that Australian MCs experience significantly higher growth opportunities than DCs and this growth opportunity explains marginally significant portion of long-term debt scaled by by sum of long-term debt and market value of equity (t=1.97) and highly significantly to explain short-term debt (t=3.403). The positive relationship signifies that Australian MCs rely on external funding in their growth process.

Table 3.6 attempts to investigate further implications of international exposures that MCs encounter while operating in the international arena by considering Australian MCs' subsidiary located countries' credit risk (*CR*) ratings, economic risk *(ER)* ratings and financial risk *(FR)*. The following table uses a sample of DCs and MCs based on 2003-2004 data as the data for those additional risks are available for only for those two particular years.

Results show that none of the additional international variables has its own unique explanatory power to explain the capital structure with any empirical economic theory; however, the inclusion of these additional three factors improved the model significantly. For example, in Table 3.3 the adjusted R square across different leverage measurements range between 4% to 41% while in Table 3.6, the adjusted R square range between 7% to 68%.

Table 3.6
The effect of additional international capital structure determinants for Australian DCs and MCs – credit risk, economic risk and finance risk

This table reports the variables and expected signs of the hypotheses. There are four dependent variables and fifteen independent variables. There are four dependent variables and fourteen independent variables. There are four dependent variables and fourteen independent variables. $LEVERAGE_{i,t}$ takes the following four forms: $LTD\_MV_{i,t}$, $LTD\_BV_{i,t}$, $STD\_BV_{i,t}$ and $TOT\_LTD\_BV_{i,t}$ which are measured as book value of long-term debt divided by sum of book value of long-term debt and market value of equity; book value of long-term debt divided by book value of total assets; book value of short-term debt divided by book value of total assets; and book value of total debt divided by book value of total assets respectively. The independent variables are measured in the following manner: $MULT_{i,t}$ – *multinationality* takes a value of 1 (unity) if the corporation is multinational otherwise it is 0 (domestic corporations). $DIVER_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. $FX_{i,t}$ – *foreign exchange risk* is calculated by the ratio of foreign sales to total sales revenue. $PR_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. $CR_{i,t}$ – credit risk is measured as the sum all the firm's subsidiaries countries' credit risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. $ER_{i,t}$ – economic risk and $FR_{i,t}$ – financial risk is measured in the same manner as $CR_{i,t}$ by altering the ratings for $ER_{i,t}$ and $FR_{i,t}$ respectively. $BETA_{i,t}$ – *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index. $BPTCY_{i,t}$ - *bankruptcy risk* is measured as the standard deviation of last five years earrings volatility of firm's earnings before interest and taxes. $ATX_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. $NDTS_{i,t}$ – *non-debt tax shield* is calculated as depreciation expense to total assets. $SIZE_{i,t}$ – *size* variable is measured as natural logarithm of total assets. $CVA_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. $AGE_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until 2004. $PROF_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. $DIVC_{i,t}$ – *dividend payment* is a ratio of cash dividend paid to net income (note losses made any year have been deleted from sample). $FCF_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. $GROW\_MB_{i,t}$ – *growth* is the market value of equity over total assets.

$$LEVERAGE_{it} = \beta_0 + \beta_1 MULT_{it} + \beta_2 DIVER_{it} + \beta_3 FXRISK_{it} + \beta_4 PR_{it} + \beta_5 CR_{it} + \beta_6 ER_{it} + \beta_7 FR_{it} + \beta_8 BPTCY_{it} + \beta_9 BETA_{it} + \beta_{10} NDTS_{it} + \beta_{11} ATR_{it} + \beta_{12} SIZE_{it} + \beta_{13} CVA_{it} + \beta_{14} AGE_{it} + \beta_{15} PROF_{it} + \beta_{16} DIVC_{it} + \beta_{17} FCF_{it} + \beta_{18} GROW\_MB_{it} + \varepsilon_{it}$$

	LTD_MV $_{i,t}$		LTD_BV $_{i,t}$		STD_BV $_{i,t}$		TOT_LTD_BV $_{i,t}$	
Variables	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.161	-0.066	-1.425	-1.020	-0.149	-0.389	-0.134	-0.087
MULT $_{i,t}$	0.103	**1.739**[c]	0.084	**1.957**[b]	0.006	0.422	0.097	**2.244**[a]
DIVER $_{i,t}$	-0.034	-1.189	-0.011	-0.594	0.000	-0.012	-0.008	-0.423
FX $_{i,t}$	-0.159	-0.964	-0.109	-1.119	0.011	0.251	-0.157	-1.609
PR $_{i,t}$	0.004	0.551	0.008	**1.663**[c]	0.003	1.325	0.007	1.255
CR $_{i,t}$	0.007	0.105	-0.037	-1.317	-0.004	-1.190	-0.023	-0.631
ER $_{i,t}$	-0.015	-0.102	0.101	1.614	0.005	0.411	0.038	0.446
FR $_{i,t}$	-0.003	-0.124	-0.014	-1.076	0.003	0.753	-0.005	-0.347
BPTCY $_{i,t}$	0.000	0.040	0.000	0.031	-0.001	**-2.584**[b]	-0.001	-1.379
BETA $_{i,t}$	-0.071	-0.382	0.075	0.914	-0.075	-1.594	-0.020	-0.207
ATR $_{i,t}$	-0.292	-0.546	-0.026	-0.078	-0.162	-0.785	0.005	0.016
NDTS $_{i,t}$	-0.078	**-2.230**[b]	-0.055	**-2.562**[b]	0.001	1.544	-0.055	**-2.741**[a]
SIZE $_{i,t}$	0.068	**3.366**[a]	0.056	**5.887**[a]	0.000	0.074	0.055	**5.327**[a]
CVA $_{i,t}$	-0.167	**-1.989**[a]	-0.119	**-2.407**[b]	-0.007	-0.263	-0.120	**-2.144**[a]
AGE $_{i,t}$	-0.029	-0.796	0.001	0.028	0.001	0.122	-0.013	-0.628
PROF $_{i,t}$	-0.037	-0.530	-0.014	-0.376	0.014	0.477	0.047	1.027
DIVC $_{i,t}$	-0.033	-0.481	-0.018	-0.508	-0.008	-0.346	-0.040	-0.910
FCF $_{i,t}$	-0.106	-0.980	-0.178	**-7.116**[a]	-0.011	-0.768	-0.190	**-6.793**[a]
GROW_MB $_{i,t}$	-0.025	**-2.087**[b]	-0.008	-1.564	-0.004	-1.326	-0.010	**-1.851**[c]
Adj R Sqr	0.2498		0.6893		0.0710		0.6141	
No. Obs	545		545		545		545	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

It has long been known that median industry leverage is an extremely powerful and robust predictor of corporate leverage. In the following Table 3.7, it shows that after controlling for industry median ratio and industry dummy variable, the majority of the explanatory variables sign and significance level stays the same across different long-term debt ratios except short-term debt. For example, the factors chosen for Model I are extremely stable no matter which of the industry related control variables are used.

As discussed earlier, firms within an industry share exposure to many of the same forces and such forces will be lead to similar trade-offs. Furthermore, product market competition creates pressure from firms to mimic the leverage ratio of other firms in the industry. The median industry ratio suggests that this factor significantly explains total debt (t=2.676). Controlling for industry dummy revealed an interesting outcome across long-term debt and short-term debt. It shows that firms that belong to agriculture and fisheries, construction, manufacturing, wholesale and retail hold significantly higher short-term debt (t=2.144; t=2.617; t=4.131; t=3.885 and t=3.541 respectively). It also shows that firms that are members of the manufacturing, transport and service industry hold significantly higher (t=4.274; t=2.013 and 3.904) long-term debt respectively.

Table 3.7
Industry effect on Australian firms' capital structure

This table presents the sensitivity of industry level leverage for both DCs and MCs. Note that among the initial five sets of models, only Model II is applied. The table provides the US 2-digit SIC codes industries for categories. This table reports the variables and expected signs of the capital structure determinants. There are four dependent variables and fourteen independent variables. There are four dependent variables and fourteen independent variables. The dependent variable ($LEVERAGE_{i,t}$) takes the following four forms: $LTD\_MV_{i,t}$, $LTD\_BV_{i,t}$, $STD\_BV_{i,t}$ and $TOT\_LTD\_BV_{i,t}$ which are measured as book value of long-term debt divided by sum of book value of long-term debt and market value of equity; book value of long-term debt divided by book value of total assets; book value of short-term debt divided by book value of total assets; and book value of total debt divided by book value of total assets respectively. Sixteen independent variables are measured as: $MULT_{i,t}$ - *multinationality* takes a value of 1 (unity) if the corporation is multinational corporations otherwise it is 0 (domestic corporations). $DIVER_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. $FX_{i,t}$ – *foreign exchange risk is calculated by the ratio of foreign sales to total sales revenue.* FX^2 – *multinationality concavity* is measured as square of foreign sales to total sales. $PR_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. $BPTCY_{i,t}$ – *bankruptcy risk* is measured as the standard deviation of last five years earrings volatility of firm's earnings before interest and taxes. $BETA_{i,t}$ – *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index. $ATX_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. $NDTS_{i,t}$ – *non-debt tax shield* is calculated as depreciation expense to total assets. $SIZE_{i,t}$ – *size* variable is measured as natural logarithm of total assets. $CVA_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. $AGE_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until 2004. $PROF_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. $DIVC_{i,t}$ – *dividend payment* is a ratio of cash dividend paid to net income (note losses made any year have been deleted from sample). $FCF_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. $GROW_{i,t}$ – *growth* is the market value of equity over total assets. Industry median ($IND\_MEDIAN_{i,t}$) is calculated as the ratio of long-term debt to total assets for each industry. The acronyms for the industries are: Agriculture, Forestry and Fishing ($IND\_A\_AFF_{i,t}$); mining ($IND\_B\_MIN_{i,t}$); Construction ($IND\_C\_CON_{i,t}$); Manufacturing ($IND\_D\_MNF_{i,t}$); Transportations, Communications and Electricity ($IND\_E\_TCE_{i,t}$); Wholesale Trade ($IND\_F\_WHL_{i,t}$); Retail Trade ($IND\_G\_RET_{i,t}$) and Service ($IND\_H\_SER_{i,t}$).

$$\begin{aligned} LEVERAGE_{it} = {} & \beta_0 + \beta_1 MULT_{it} + \beta_2 DIVER_{it} + \beta_3 FXRISK_{it} + \beta_4 PRISK_{it} + \beta_5 BPTCY_{it} + \beta_6 BETA_{it} \\ & + \beta_7 NDTS_{it} + \beta_8 ATR_{it} + \beta_9 SIZE_{it} + \beta_{10} CVA_{it} + \beta_{11} AGE_{it} + \beta_{12} PROF_{it} + \beta_{13} DIVC_{it} \\ & + \beta_{14} FCF_{it} + \beta_{15} GROW\_MB_{it} + \beta_{16} IND\_MEDIAN + \beta_{17} \sum IND_{it} + \varepsilon_{it} \end{aligned}$$

	$LTD\_MV_{i,t}$		**$LTD\_BV_{i,t}$**		**$STD\_BV_{i,t}$**		**$TOT\_LTD\_BV_{i,t}$**	
Variables	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.414	**-2.445**^{a}	-0.226	**-1.926**^{b}	0.043	1.096	-0.201	-1.646
$MULT_{i,t}$	0.024	0.910	0.028	**1.842**^{b}	0.004	0.637	0.024	1.407
$DIVER_{i,t}$	-0.011	-1.307	-0.005	-0.941	-0.002	-1.036	-0.004	-0.629
$FX_{i,t}$	-0.100	**-3.506**^{a}	-0.080	**-4.098**^{a}	0.000	0.040	-0.092	**-4.354**^{a}
$PR_{i,t}$	0.003	1.498	0.001	0.426	0.000	-1.066	0.000	0.174
$BPTCY_{i,t}$	0.000	**2.210**^{b}	0.000	**1.668**^{c}	0.000	**-2.850**^{a}	0.000	1.458
$BETA_{i,t}$	-0.238	**-2.603**^{b}	-0.100	**-1.719**^{c}	-0.051	**-2.312**^{b}	-0.164	**-2.553**^{a}
$ATR_{i,t}$	-0.199	-0.769	-0.011	-0.045	0.208	1.321	0.278	1.347
$NDTS_{i,t}$	0.004	1.633	0.004	**4.038**^{a}	0.001	1.100	0.005	**2.449**^{a}
$SIZE_{i,t}$	0.071	**9.430**^{a}	0.052	**11.706**^{a}	0.001	0.459	0.051	**10.449**^{a}
$CVA_{i,t}$	0.078	1.502	0.111	**2.690**^{b}	-0.012	-1.083	0.125	**2.893**^{a}
$AGE_{i,t}$	-0.034	**-2.979**^{a}	-0.015	**-1.994**^{b}	0.004	**2.307**^{a}	-0.006	-0.730
$PROF_{i,t}$	-0.053	**-2.040**^{a}	-0.028	-1.449	0.006	0.449	-0.026	-1.098
$DIVC_{i,t}$	-0.102	**-3.275**^{a}	-0.078	**-3.912**^{a}	-0.006	-0.779	-0.088	**-4.105**^{a}
$FCF_{i,t}$	-0.051	**-2.355**^{b}	-0.050	**-2.472**^{b}	-0.013	**-1.952**^{a}	-0.050	**-2.498**^{a}
$GROW\_MB_{i,t}$	-0.010	**-3.908**^{a}	-0.004	**-2.730**^{b}	0.000	0.375	-0.005	**-2.794**^{a}
$IND\_MEDIAN_{i,t}$	0.004	0.106	0.021	1.210	0.014	1.192	0.057	**2.676**^{a}
$IND\_A\_AFF_{i,t}$	0.139	**1.887**^{b}	0.040	1.213	0.026	**2.144**^{b}	0.014	0.357
$IND\_B\_MIN_{i,t}$	0.053	1.347	0.007	0.273	0.018	**1.848**^{c}	-0.019	-0.617
$IND\_C\_CON_{i,t}$	0.028	0.872	0.036	**1.686**^{c}	0.055	**2.617**^{b}	0.097	**2.914**^{a}
$IND\_D\_MNF_{i,t}$	0.157	**4.500**^{a}	0.083	**4.274**^{a}	0.034	**4.131**^{a}	0.107	**4.248**^{a}

$IND\_E\_TCE_{i,t}$	0.090	**1.646**^{c}	0.077	**2.013**^{b}	0.022	**1.997**^{a}	0.125	**2.975**^{a}
$IND\_F\_WHL_{i,t}$	0.130	1.591	0.018	0.694	0.065	**3.885**^{a}	0.079	**1.931**^{b}
$IND\_G\_RET_{i,t}$	0.038	0.858	0.010	0.327	0.040	**3.541**^{a}	0.017	0.385
$IND\_H\_SER_{i,t}$	0.084	**2.849**^{a}	0.078	**3.904**^{a}	0.008	1.001	0.061	**2.513**^{a}
Adj R Sqr	0.387		0.469		0.067		0.569	
No. Obs	2248		2248		2248		2248	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively (two tailed test).

Table 3.7 confirms that regardless of any capital structure theory and justification of using any particular variable, the first 14 variables explain the capital structure the most for all firms. The other variable also appears significant by its own right but on a cumulative basis they do not add much significant value to the model. Therefore, the cost of adjustment model uses the very first proposed model's estimates.

The results in Table 3.8 confirm the traditional view in corporate finance that both Australian DCs and MCs strive to maintain an optimal capital structure that balances the costs and benefits associated with varying degrees of financial leverage (Leary & Roberts, 2005; Fama & French, 2002; Baker & Wurgler, 2002). Table 3.8 is divided into four segments in order to investigate the speed of adjustment costs across Australian MCs and DCs employing market value of long-term debt and book value of long-term debt; short-term debt and total debt across five years starting from 2000.[27] The results suggest that both DCs and MCs experience the presence of adjustment costs at different rates across years which results in shocks having a persistent effect on both market value of debt ratios and book value of debt ratios. The speed of adjustment costs for DCs in Panel A (market value of debt) range between -3% to 38% over five years while on average it is 12% per year. Similarly, the speed of adjustment costs for market value of MCs' debt fall in the range of -1% to 36%. We further conduct a non-parametric test (Table 3.10) to test whether there is a significant difference across Australian DCs' and MCs' speed of partial adjustment costs across different definitions of debt ratios. It reveals that generally, on average, Australian MCs have higher positive adjustment costs (the benefit of cost of adjustment towards optimal level debt ratio outweighs the risks associated with the adjustments towards optimum) of market and book value of long-term debt, but not book value of short-term and long-term

[27] I was unable to do speed of adjustment costs analysis across the whole sample period due to lack of matched panel data and lag data availability during 1995-1999 across the independent and explanatory variables.

debt than, their DCs counterparts. However, the majority of the results in mean difference of different measures of debt ratios between DCs and MCs are not significantly different at any conventional statistical significance level, except the speed of adjustment costs of long-term book value debt of MCs are significantly higher than DCs at 10% significance level. Further, an interesting result can be spotted in Figure 3.1 and Table 3.9 where it shows that both types of Australian firms (MCs and DCs) have a common tendency of adjusting in larger proportion of their book value of short-term debt every year than the long-term debt. Further, a highly significant result of the benefit of adjustment towards optimum level of long-term and short-term book value of debt difference is also observed. This suggests that in order to rebalance the short-term debt in the capital structure, Australian DCs are in a better position to exploit the advantage of local debt market than the MCs, as the benefit of rebalancing the short-term debt outweighs the costs of adjustment.

Table 3.8

Capital structure and speed of adjustment costs across Australian DCs and MCs

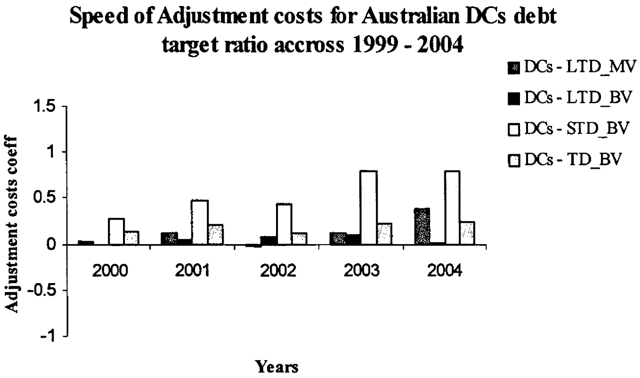
While Panel A represents the adjustment costs of DCs' and MCs' capital structure for long-term and short-term debt for 5 years (2000-2004), Panels B, C, D and E present individual years.

Panel A	$LTD\_MV_{i,t}$				$LTD\_BV_{i,t}$				$STD\_BV_{i,t}$				$TOT\_LTD\_BV_{i,t}$			
	DCs		MCs		DCs		MCs		DCs		MCs		DCs		MCs	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Constant	-0.002	-0.287	-0.009	-0.559	0.003	1.204	-0.017	-1.030	-0.005	**-2.121**[a]	-0.005	-1.477	-0.010	-1.585	0.014	0.815
$L^* - L_{t-1}$	0.174	**1.935**[b]	0.193	1.607	0.023	0.835	0.293	1.434	0.587	**8.135**[a]	0.682	**6.117**[a]	0.154	**2.082**[b]	-0.173	-1.191
Observations	511		625		511		625		511		625		511		625	
Adj R-sqr	0.083		0.096		0.004		0.182		0.401		0.388		0.061		0.073	

Panel B	AU – DCs: $LTD\_MV_{i,t}$										AU – MCs: $LTD\_MV_{i,t}$									
	2000		2001		2002		2003		2004		2000		2001		2002		2003		2004	
Variable	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
Constant	0.001	0.050	-0.01	-1.340	0.013	1.857	0.003	0.142	0.000	-0.02	0.056	0.003	0.000	0.089	-0.030	-0.780	-0.010	-1.590	-0.010	-1.020
$L^* - L_{t-1}$	0.037	0.247	0.121	**2.488**[a]	-0.032	-0.412	0.110	1.151	0.387	1.253	0.023	0.763	-0.007	-0.995	0.119	1.341	0.355	1.600	0.197	1.324
Adj R-sqr	0.002		0.179		0.004		0.021		0.284		0.004		0.009		0.031		0.34		0.2	
Panel C	AU – DCs: $LTD\_BV_{i,t}$										AU – MCs: $LTD\_BV_{i,t}$									
Constant	0.007	1.258	-0.004	-0.337	0.009	1.431	0.003	0.712	0.000	-0.160	0.016	0.020	-0.002	-0.478	-0.062	**-2.105**[b]	-0.003	-0.558	-0.014	-1.631
$L^* - L_{t-1}$	-0.014	-0.161	0.045	0.462	0.087	1.412	0.094	1.598	0.017	1.106	0.011	0.660	0.002	0.428	0.562	**2.278**[b]	0.206	1.144	0.376	1.486
Adj R-sqr	0.002		0.009		0.05		0.05		0.012		0.005		0.003		0.599		0.192		0.345	
Panel D	AU – DCs: $STD\_BV_{i,t}$										AU – MCs: $STD\_BV_{i,t}$									
Constant	-0.005	-1.481	0.007	1.017	-0.009	-1.487	-0.002	-0.354	-0.004	-0.678	0.050	12.514[a]	0.010	1.259	0.001	0.086	-0.002	-0.283	0.001	0.169
$L^* - L_{t-1}$	0.273	**2.725**[a]	0.466	**4.171**[a]	0.434	**3.173**[b]	0.793	**10.577**[a]	0.794	**5.275**[a]	-0.895	**-25.509**[a]	0.336	**2.780**[a]	0.820	2.697	0.957	**14.835**[a]	0.789	**4.361**[a]
Adj R-sqr	0.287		0.253		0.312		0.609		0.552		0.83		0.138		0.529		0.889		0.48	
Panel E	AU – DCs: $TOT\_LTD\_BV_{i,t}$										AU – MCs: $TOT\_LTD\_BV_{i,t}$									
Constant	0.001	0.096	-0.009	-0.477	0.002	0.233	-0.007	-1.087	-0.020	-1.138	0.068	1.622	0.014	1.069	-0.001	-0.068	-0.016	**-2.263**[b]	2E-04	0.011
$L^* - L_{t-1}$	0.136	1.646	0.198	1.156	0.118	1.467	0.222	**2.490**[b]	0.243	1.121	-0.739	**-6.509**[a]	-0.013	-0.891	0.110	1.383	0.490	**2.844**[a]	0.473	1.259
Adj R-sqr	0.098		0.141		0.065		0.22		0.225		0.694		0.006		0.107		0.524		0.098	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

Figure 3.1
Speed of adjustment costs across different debt for MCs and DCs over 1995-2004.



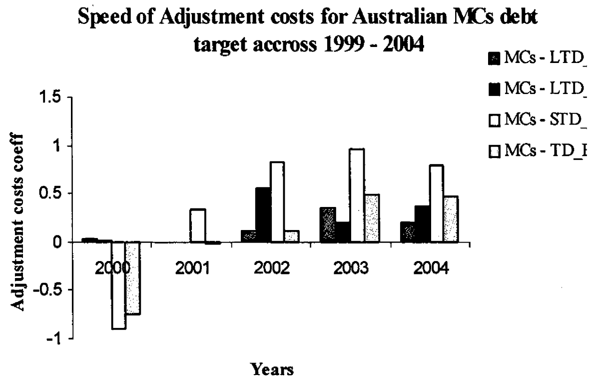


Table 3.9
t-test of adjustment costs across Australian MCs and DCs over 5 years capital structure

Four dependent variables are used in this table. $LTD\_MV_{i,t}$ is measured as the ratio of long-term debt to long-term debt and market value of equity; $LTD\_BV_{i,t}$ is measured as the ratio of long-term debt to book value of total assets and $STD\_BV_{i,t}$ is measured as short-term debt to total assets. The coefficients of adjustment costs across five years have been reported and a t-test is conducted to investigate whether there is significant difference in adjustment costs between DCs and MCs.

	LTD_MV $_{i,t}$			LTD_BV $_{i,t}$			STD_BV $_{i,t}$			TOT_LTD_BV $_{i,t}$			DCs_BV			MCs_BV		
	DCs	MCs	t-test	DCs	MCs	t-test	DCs	MCs	t-test	DCs	MCs	t-test	LTD	STD	t-test	LTD	STD	t-tes
2004	0.037	0.023		-0.014	0.011		0.273	-0.9		0.136	-0.74		-0.014	0.273		0.011	-0.895	
2003	0.387	0.197		0.017	0.376		0.794	0.789		0.243	0.473		0.017	0.794		0.376	0.789	
2002	0.11	0.355		0.094	0.206		0.793	0.957		0.222	0.490		0.094	0.793		0.206	0.957	
2001	-0.03	0.119		0.087	0.562		0.434	0.82		0.118	0.110		0.087	0.434		0.562	0.820	
2000	0.121	-0.010		0.045	0.002		0.466	0.336		0.198	-0.01		0.045	0.466		0.002	0.336	
Mean	0.125	0.138	0.132	0.046	0.231	**1.69** [c]	0.552	0.401	0.423	0.184	0.064	0.53	0.046	0.552	**4.778** [a]	0.231	0.401	0.4

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

The above results support the findings of Leary and Roberts (2005) and Flannery and Rangen (2006) put forward that debt levels do not stay constant year to year. They argue that many studies wrongly assumed debt level stay constant over time and therefore the adjustment costs are zero. Their results confirm that debt levels do not stay constant over time and my results further confirm this for both DCs and MCs. This result indicate that assuming the debt level stays constant and therefore the adjustment costs is zero could certainly lead to obtain bias results. Therefore, in the previous literature, failing to adjust for adjustment costs in their analysis of capital structure determinants gives a warning of careful interpretation.

Table 3.10 presents a univariate regression that tests the overall time effect on leverage to investigate the effect of time on leverage. The result shows that over 10 years from 1995 to 2004 long-term leverage is statistically positive and significant across DCs and MCs for market value of debt (t=2.490 and t=2.964). However, although I observe a positive linear relationship with the incremental time effect for both DCs and MCs, MCs have no apparent significant relationship across any long-term and short-term debt. Interestingly, time trend reveals that short-term book value of debt has been on average declining.

Table 3.10
Time variation on capital structure for Australian DCs and MCs

Three dependent variables are used in this table. $LTD\_MV_{i,t}$ is measured as the ratio of long-term debt to long-term debt and market value of equity; $LTD\_BV_{i,t}$ is measured as the ratio of long-term debt to book value of total assets, and $STD\_BV_{i,t}$ is measured as short-term debt to total assets. Independent variable of Yr is a categorical incremental value; for example, if the dependent variables are from 1995 then it is coded as 1 and it increases to 10 as the year proceeds.

$$LEVERAGE_{i,t} = C + \beta_1 Time_{i,t} + \varepsilon_{i,t}$$

	$LTD\_MV_{i,t}$				$LTD\_BV_{i,t}$				$STD\_BV_{i,t}$			
	DCs		MCs		DCs		MCs		DCs		MCs	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
C	-10.497	-2.476 ^{b}	-18.099	-2.955 ^{a}	-9.655	-2.237 ^{b}	-11.280	-1.554	1.118	0.628	-1.218	-0.637
$Yr_{i,t}$	0.005	2.490 ^{b}	0.009	2.964 ^{a}	0.005	2.253 ^{b}	0.006	1.567	-0.001	-0.602	0.001	0.663
No. of Obs	994		1254		994		1254		994		1254	
Adj R-sqr	0.0068				0.0073				0.0002			

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

Although not reported, a further analysis of individual year effects on determinants has also been investigated to identify whether time effect has any significant variation in capital structure determinants. When an individual yearly regression is ran, it is found that the determining factors vary across years for both DCs and MCs but the variation of capital structure determining factors across years are more prominent in MCs' capital structure.

3.7 SUMMARY AND CONCLUSION

The primary objective of the research reported in this paper was to enhance our understanding about the determinants of Australian domestic and multinational corporations by using a unique dataset. The findings in this chapter reconfirm the determinants that have been investigated in

Akhtar (2005), and in addition, some interesting insight into capital structure determinants is also revealed.

The results indicate that after controlling for multinational effects, foreign exchange risk, firm-specific risks, average tax rate, size, age, cash dividend payments, free cash flow and growth variables are the significant determinants for long-term debt across Australian DCs and MCs regardless of what definition of long-term debt ratios is employed. The multinationality is a significant factor in explaining long-term debt ratios. In explaining short-term debt, the significant determinants are bankruptcy risks, firm-specific risks, age and free cash flows. The impact of increasing Australian firms' global association through foreign sales (depth) and number of subsidiaries (breadth) show no significant optimal relationship with debt ratios. In relation to interaction effects that explain the differences between DCs' and MCs' debt ratios, the significant interaction variables are diversification and age for long-term debt ratios and diversification, bankruptcy risks and growth for short-term debt. The additional financial factors – credit risks, economic risks and financial risk have no significant impact on capital structure decision; however, inclusion of these variables largely improves the explaining power of the model. Industry effects are considered and some industries became significant in explaining capital structure. Finally, the capital structure varied significantly over the sample period. This variation is explained by the positive significant speed of adjustment, indicating the possible existence of positive net benefit in annual adjustment of the capital structure towards their target level. Further, results also suggests that MCs in Australia adjust their target levels of debt faster relative to their counterparts DCs. The table below provides a summary of the hypothesis and results of this chapter.

Table 3.11
Summary of Hypotheses and Results

Hypothesis	Description	Proxy	Expected Sign	Rejected H_0 (Supporting H_1)
1	*$H1_0$: There is no significant difference between MCs' and DCs' debt ratios in Australia.* *$H1_1$: There is a significant difference between MCs' and DCs' debt ratios in Australia.*	***Univariate Test***	+/-	Fail to reject H_0. It suggest that Australian MCs do not have significantly higher short-term, long term and total debt than DCs.
2	*$H2_0$: There is no significant relationship between MCs' level of multinationality*	***$MULT_{i,t}$***	+/-	H_0 is rejected in favour of the H_1 for MCs in Australia (using *LTD_BV*

	and debt ratios. *$H2_1$: There is a significant relationship between MCs' level of multinationality and debt ratios.*			and *TOT_LTD_BV*) in Table 3.3. This suggest that Australian MCs hold significantly higher long term and total book value of debt than DCs.
3A	*$H3A_0$: There is no significant relationship between the level of diversification and debt ratios for DCs' and MCs.* *$H3A_1$: There is significant relationship between the level of diversification and debt ratios for DCs' and MCs.*	***$DIVER_{i,t}$***	+/-	H_0 is rejected in favour of the H_1 for Australian DCs (*STD_BV*) and MCs (LTD_MV, LTD_BV, STD_BV and TOT_LTD_BV). The negative significant coefficient on the diversification suggests that Australian MCs have higher bankruptcy risk due to undiversified cash flows (Table 3.2)
3B	*$H3B_0$: There is no significant difference between the level of diversification and MCs' debt ratios.* *$H3B_1$: There is significant difference between the level of diversification and MCs' debt ratios.*	***$M\_DIVER_{i,t}$***	+/-	H_0 is rejected for MCs in Australia suggesting that Australian MCs' diversification significantly reduces debt holding capacity relative to DCs. (Table 3.5)
4A	*$H4A_0$: There is no significant relationship between the level of foreign exchange risk and debt ratios for DCs' and MCs.* *$H4A_1$: There is a significant relationship between the level of foreign exchange risk and debt ratios for DCs' and MCs.*	***$FX_{i,t}$***	+/-	H_0 is rejected for DCs in Australia suggesting that the foreign exchange risk is detrimental for DCs capital structure. (Table 3.2)
4B	*$H4B_0$: There is no significant difference between the level of foreign exchange risk and MCs' debt ratios.* *$H4B_1$: There is significant difference between the level of foreign exchange risk and MCs' debt ratios.*	***$M\_FX_{i,t}$***	+/-	H_0 is rejected for MCs in Australia in explaining LTD_BV. It suggests that MCs' foreign exchange risk acts in favor and assist to increase their book value of debt. (Table 3.5)
5A	*$H5A_0$: There is no significant relationship between the level of political risk and debt ratios for DCs' and MCs.* *$H5A_1$: There is a significant relationship between the level of political risk and debt ratios for DCs' and MCs.*	***$PR_{i,t}$***	+/-	Fails to reject H_0 for both DCs and MCs in Australia. This suggests that there is no significant political risk threat to either of those two types of firm that can impact on their capital structure.
5B	*$H5B_0$: There is no significant difference between the level of political risk and MCs' debt ratios.* *$H5B_1$: There is significant difference between the level of political risk and MCs' debt ratios.*	***$M\_PR_{i,t}$***	+/-	Fails to reject H_0 because there is no significant difference is observed between DCs and MCs political risk exposure in explaining capital structure. (Table 3.5)
6A	*$H6A_0$: There is no significant relationship between the level of bankruptcy risk and debt ratios for DCs' and MCs.* *$H6A_1$: There is a significant relationship between the level of bankruptcy risk and debt ratios for DCs' and MCs.*	***$BPTCY_{i,t}$***	-	H_0 is rejected for both DCs and MCs in favour of the H_1 in explaining their short term debt (STD_BV). This suggest that bankruptcy risk significantly reduces both DCs' and MCs' short term debt ratios. (Table 3.2)
6B	*$H6B_0$: There is no significant difference between the level of foreign exchange risk and MCs' debt ratios.* *$H6B_1$: There is significant difference between the level of foreign exchange*	***$M\_BPTCY_{i,t}$***	-/+	H_0 is rejected in favour of the H_1. This suggests that Australian MCs have significantly higher magnitude of negative bankruptcy risk which decreases the leverage ratio relative

	risk and MCs' debt ratios.			to DCs. (Table 3.5)
7A	$H7A_0$: *There is no significant relationship between the level of firm's beta risk and debt ratios for DCs' and MCs.* $H7A_1$: *There is a significant relationship between the level of firm's beta risk and debt ratios for DCs' and MCs.*	$\boldsymbol{BETA_{i,t}}$	-	H_0 is rejected in favour of the H_1 in explaining short term debt for DCs and long term debt for MCs. This suggests that as firm risk increases, it significantly decreases DCs' short term debt ratios and MCs long term book value of debt holding ratios. (Table 3.2)
7B	$H7B_0$: *There is no significant difference between the level of firm's beta risk and MCs' debt ratios.* $H7B_1$: *There is significant difference between the level of firm's beta risk and MCs' debt ratios.*	$\boldsymbol{M\_BETA_{i,t}}$	-/+	Fails to reject H_0 because there is no significant difference is observed between DCs and MCs firm specific risk in explaining debt ratios. (Table 3.5)
8A	$H8A_0$: *There is no significant relationship between the level of firm's average tax and debt ratios for DCs' and MCs.* $H8A_1$: *There is a significant relationship between the level of firm's average tax and debt ratios for DCs' and MCs.*	$\boldsymbol{ATR_{i,t}}$	+	H_0 is rejected in favour of the H_1 in explaining LTD_MV and STD_BV for DCs and TOT_LTD_BV for MCs. This suggest that average tax ratio significantly assist in increasing DCs short term debt and MCs' total book value of debt; however, it significantly decreases DCs' long term book value of debt.
8B	$H8B_0$: *There is no significant difference between the level of firm's average tax and MCs' debt ratios.* $H8B_1$: *There is significant difference between the level of firm's average tax and MCs' debt ratios.*	$\boldsymbol{M\_ATR_{i,t}}$	+/-	H_0 is rejected in favour of the H_1 in explaining TOT_LTD_BV for MCs. This suggests that Australian MCs' experience a significantly higher average tax ratio and it assists to increase their debt ratios. (Table 3.5)
9A	$H9A_0$: *There is no significant relationship between the level of non debt tax shield and debt ratios for DCs' and MCs.* $H9A_1$: *There is a significant relationship between the level of non debt tax shield and debt ratios for DCs' and MCs.*	$\boldsymbol{NDTS_{i,t}}$	-	H_0 is rejected in favour of the H_1 in explaining DCs' debt ratios. This suggests that non debt tax shield significantly assist in increasing DCs long term debt ratios. (Table 3.2)
9B	$H9B_0$: *There is no significant difference between the level of non debt tax shield and MCs' debt ratios.* $H9B_1$: *There is significant difference between the level of non debt tax shield and MCs' debt ratios.*	$\boldsymbol{M\_NDTS_{i,t}}$	-/+	Fails to reject H_0 because there is no significant difference is observed between DCs and MCs non debt tax shield in explaining debt ratios. (Table 3.5)
10A	$H10A_0$: *There is no significant relationship between the level of size and debt ratios for DCs' and MCs.* $H10A_1$: *There is a significant relationship between the level of size and debt ratios for DCs' and MCs.*	$\boldsymbol{SIZE_{i,t}}$	+	H_0 is rejected in favour of the H_1 in explaining DCs' and MCs' debt ratios. This suggests that Australian DCs and MCs' size of their total assets assists to increase their debt ratios. (Table 3.2)
10B	$H10B_0$: *There is no significant difference between the level of size and MCs' debt ratios.* $H10B_1$: *There is significant difference between the level of size and MCs' debt ratios.*	$\boldsymbol{M\_SIZE_{i,t}}$	+/-	Reject H_0 because there is a significant difference exist between DCs' and MCs' total assets in explaining total debt ratios. (Table 3.5)
11A	$H11A_0$: *There is no significant relationship between the level of collateral value of assets and debt ratios*	$\boldsymbol{CVA_{i,t}}$	+	H_0 is rejected in favour of the H_1 in explaining DCs' debt ratios. This suggests that the higher magnitude

	for DCs and MCs. *H11A₁ : There is a significant relationship between the level of collateral value of assets and debt ratios for DCs and MCs.*			of Australian DCs collateral value of assets assists to increase their debt ratios. (Table 3.2)
11B	*$H11B_0$: There is no significant difference between the level of collateral value of assets and MCs' debt ratios.* *$H11B_1$: There is significant difference between the level of firm's collateral value of assets and MCs' debt ratios.*	***$M\_CVA_{i,t}$***	+/-	Reject H_0 because there is a significant difference exist between DCs and MCs collateral value of assets in explaining book value of long term debt ratios. (Table 3.5)
12A	*$H12A_0$: There is no significant relationship between the level of age and debt ratios for DCs and MCs.* *$H12A_1$: There is a significant relationship between the level of age and debt ratios for DCs and MCs.*	***$AGE_{i,t}$***	+/-	H_0 is rejected in favour of the H_1 in explaining DCs' and MCs' debt ratios. This suggest that as the Australian DCs mature, it significantly reduces their debt ratios while the opposite holds for MCs. (Table 3.2)
12B	*$H12B_0$: There is no significant difference between the level age and MCs' debt ratios.* *$H12B_1$: There is significant difference between the level of age and MCs' debt ratios.*	***$M\_AGE_{i,t}$***	+/-	Reject H_0 because there is a significant difference exist between DCs and MCs firm maturity or age in explaining debt ratios and as the MCs matures it assists them to increase debt ratios. (Table 3.5)
13A	*$H13A_0$: There is no significant relationship between the level of profitability and debt ratios for DCs and MCs.* *$H13A_1$: There is a significant relationship between the level of profitability and debt ratios for DCs and MCs.*	***$PROF_{i,t}$***	-	H_0 is rejected in favour of the H_1 in explaining DCs' debt ratios. This suggests that as the profitability increases in Australian DCs, it significantly reduces their debt ratios as they finance it through internally generated funds. (Table 3.2)
13B	*$H13B_0$: There is no significant difference between the level of profitability and MCs' debt ratios.* *$H13B_1$: There is significant difference between the level of profitability and MCs' debt ratios.*	***$M\_PROF_{i,t}$***	+/-	Fails to reject H_0 because there is no significant difference is observed between DCs and MCs profitability factor in explaining debt ratios. (Table 3.5)
14A	*$H14A_0$: There is no significant relationship between the level of cash dividend and debt ratios for DCs' and MCs.* *$H14A_1$: There is a significant relationship between the level of cash dividend and debt ratios for DCs' and MCs.*	***$DIVC_{i,t}$***	-	H_0 is rejected in favour of the H_1 in explaining both DCs' and MCs' debt ratios. This suggests that as the cash dividend payment increase, it significantly reduces their debt ratios as the dividend payments impose a constraint on the availability of cash. (Table 3.2)
14B	*$H14B_0$: There is no significant difference between the level of cash dividend and MCs' debt ratios.* *$H14B_1$: There is significant difference between the level of cash dividend and MCs' debt ratios.*	***$M\_DIVC_{i,t}$***	+	Fails to reject H_0 because no significant difference is observed between DCs and MCs cash dividend payout ratios in explaining debt ratios. (Table 3.5)
15A	*$H15A_0$: There is no significant relationship between the level of free cash flow and debt ratios for DCs' and MCs.* *$H15A_1$: There is a significant relationship between the level of free cash flow and debt ratios for DCs' and MCs.*	***$FCF_{i,t}$***	+	H_0 is rejected in favour of the H_1 in explaining DCs' and MCs' debt ratios. This suggests that an increase in free cash flows reduces the debt ratios. (Table 3.2)

15B	*$H15B_0$: There is no significant difference between the level of free cash flow and MCs' debt ratios.* *$H15B_1$: There is significant difference between the level of free cash flow and MCs' debt ratios.*	***$M\_FCF_{,t}$***	+	Reject H_0 because there is significant difference is observed between DCs and MCs free cash flow factor in explaining MCs' long debt ratios. (Table 3.5)
16A	*$H16A_0$: There is no significant relationship between the level growth and debt ratios for DCs' and MCs.* *$H16A_1$: There is a significant relationship between the level growth and debt ratios for DCs' and MCs.*	***$GROW\_MB_{i,t}$***	-	H_0 is rejected in favour of the H_1 in explaining DCs' and MCs' debt ratios. This suggests that an increase in growth reduces the debt ratios and it is consistent with the theory that when firms in growth mode, firms become volatile and therefore less debt is kept. (Table 3.2)
16B	*$H16B_0$: There is no significant difference between the level of growth and MCs' debt ratios.* *$H16B_1$: There is significant difference between the level of growth and MCs' debt ratios.*	***$M\_GROW\_MB_{i,t}$***	+/-	Reject H_0 because there is significant difference is observed between DCs and MCs growth factor in explaining MCs' long debt ratios. This suggests that Australian MCs' growth opportunities are higher than their DCs counterparts which enable them to hold less market value of debt. (Table 3.5)
17	*$H17_0$: There is no significant relationship between MCs' magnitude of multinationality and debt ratios.* *$H17_0$: There is significant relationship between MCs' magnitude of multinationality and debt ratios.*	***FX^2 and $DIVER^2$***	+/-	Fails to reject H_0 because there is no significant relationship exists in claiming the optimal level of multinationality for Australian MCs. (Table 3.4)
18	*$H18_0$: There is no significant industry effect on debt ratios.* *$H18_1$: There is a significant industry effect on debt ratios.*	***$CR_{i,t}$, $ER_{i,t}$ and $FR_{,t}$***	+/-	Reject H_0 because there is significant financial risk effect found in explaining both DCs' and MCs' debt ratios. (Table 3.6)
19	*$H19A_0$: There is no significant industry effect on debt ratios.* *$H19A_1$: There is a significant industry effect on debt ratios.*	***$IND_{i,t}$***	+/-	Reject H_0 because there is significant industry effect found in explaining both DCs' and MCs' debt ratios. (Table 3.5)
20	*$H20B_0$: There is no significant time effect on debt ratios for DCs and MCs.* *$H20B_1$: There is significant time effect on debt ratios for DCs and MCs.*	***δ in Model IV and $Yr_{,t}$***	+/-	Reject H_0 because there is significant time effect found in explaining both DCs' and MCs' debt ratios. (Table 3.8, 3.9 and 3.10)

- 4 -
CAPITAL STRUCTURE OF MCs AND DCs – AN INTERNATIONAL COMPARISON

4.1 INTRODUCTION

A contentious issue in finance over the past 50 years has been that of the determinants of corporate capital structure.[28] Specifically, despite the general level of interest in capital structure determinants in both the business and academic worlds, there have been little research done thus far on MCs in cross-country comparison. While a few international studies have been undertaken to investigate the cross-sectional difference between DCs and MCs during the 1990's (Lee & Kwok, 1988; Burgman, 1996; Chen et al., 1997; Homaifar, Zietz & Benkato, 1998) and cross country capital structure differences (Rajan & Zingales, 1995; McClure, Clayton & Hofler, 1999; Wald, 1999),[29] little research has been undertaken that compares the determinants of capital structure between DCs and MCs across countries. Therefore, this study will investigate the determinants of DCs' and MCs' capital structures across five countries, drawing mainly on traditional capital structure theories,[30] dynamic capital structure theories,[31,32] international capital structure theories.

How MCs manage their corporate financial requirements and what determines corporate capital structure for DCs and MCs across countries has been an issue of strong interest for a long time

[28] Throughout this chapter capital structure, debt ratio and leverage have been used interchangeably. Capital structure of a firm in this chapter is usually represented by the ratio of long-term debt to long-term debt and market value of equity which is most often referred, as leverage or debt ratio (Lee and Kwok, 1988). Also, in this chapter we briefly look at other two long-term debt ratios and short-term debt ratio which were discussed in Chapter 3.

[29] These studies provide evidence for the G-7 countries to (U.S., U.K., Canada, France, Italy, Germany and France) capital structure difference at firm-level in general.

[30] See, for example, DeAngelo and Masulis (1980), Bradley, Jarrell and Kim (1984), Booth and Smith (1986), Brennen and Kraus (1987), Titman and Wessels (1988), Fischer, Heinkel and Zechner (1989), Makie-Mason (1990), Prowse (1990) and Harris and Raviv (1991).

[31] Donaldson (1961), Hall and Weiss (1967), Akerlof (1970), Gale (1972), Baker (1973), Carleton and Silberman (1977), Myers (1984), Myers and Majluf (1984), Long and Malitz (1985), Kester (1986), Fischer, Heinkel and Zechner (1989), and Chang and Rhee (1990).

[32] A third theory of capital structure choice based on debt maturity is beyond the scope of this thesis. Debt maturity in relation to capital structure is discussed by Barnea, Haugen & Senbet Barnea et al. (1980), Flannery (1986) and Robbins and Schatzberg (1986).

specially given that multinational firms hold substantial amounts of wealth in many countries and the liberalisation and globalisation certainly warrants a thorough investigation of MCs' capital structure. In addition, the increased importance of 'globalised markets' with global competition suggests that the determinants of MCs' capital structure are becoming increasingly important. Further, obtaining an understanding of the determinants of capital structure and the differences between DCs' and MCs' capital structure is of interest to academics, politicians, shareholders and financiers.

This study examines the capital structure and the determinants of capital structure of 6038 DCs and 5918 MCs across Australia, the U.S., Japan, U.K. and Malaysia. These countries are characterised by different taxation systems (e.g. imputation tax system vs. classical tax system and civil law vs. common law) and financial system, which may have impact on capital structure decisions. Both cross-sectional and time variations in capital structure are explored for DCs and MCs across countries. This study has eight major findings. Firstly, the determinants of long-term debt ratios between DCs and MCs differ across the sample countries. Foreign exchange risk, size and collateral value of assets are the only factors that are consistently significant across the sample countries' DCs. In contrast, no consistent factors are observed in MCs' long-term debt ratios determination across the sample countries. Diversification plays an important role in explaining short-term debt ratios between DCs and MCs across all sample countries. Secondly, the results show that MCs hold significantly less debt than DCs in the U.S. while Malaysian MCs hold significantly higher debt than Malaysian DCs counterparts. Thirdly, country effects show that DCs and MCs in all sample countries hold significant positive relationship with short-term debt over time. However, Australia, Japan U.K. and Malaysia hold significantly less long-term debt relative to U.S. firms. Fourthly, firms that operate under the imputation tax system (mainly Australia and U.K.), hold significantly less short-term and long-term debt as opposed to firms those operate under classical tax system. Fifthly, firms that follow common law have significantly less short-term debt and significantly higher long-term debt than the DCs and MCs in civil law countries. Sixthly, industry effect indicates that the industries impact on capital structure is not similar across DCs and MCs; however, industry affect across countries support the hypothesis that industry effect is significant and varies across countries. Seventhly, both time variation and the determination of capital structure vary across DCs and MCs. Finally, the speed of adjustment confirms that Australian and Japanese MCs adjust their long-term debt ratios towards their target level faster than their DCs counterparts, while U.K. and Malaysian MCs exhibit the opposite. Furthermore, Australian, U.S. and U.K. MCs adjust their short-term debt ratios towards their target level relatively quicker than DCs counterparts.

The paper is divided into six sections. A brief overview of MCs' and DCs' financial structure across countries is presented in section 4.2. The subsequent section 4.3 presents the impact of multinationality and assesses previous studies of capital structure. Section 4.4 discusses the international cross country capital structure theory. Section 4.5 provides discussion of the results while section 4.6 summarises the key findings and concludes the paper.

4.2 A BRIEF OVERVIEW OF MCS' AND DCS' FINANCIAL STRUCTURE ACROSS COUNTRIES

The determinants of capital structure have captured academic thought for many decades, particularly since Modigliani and Miller (1958). If optimal capital structures do exist and if these structures maximise firm value, obtaining an understanding of the determinants of capital structure is important in order to understand the way firms maximise value. MCs control considerable assets and some control more assets than those controlled by some countries. For example, Table 1.1 presents the market value, total sales and total asset value long-term and short debt of DCs and MCs across Australia, U.S., Japan, U.K. and Malaysia respectively in 2004 in their local currency. It shows that differences exist in terms of firms' market value across countries. For example, Australian, Japanese and Malaysian MCs have 3, 5 and 3 times more market value of equity than their domestic counterparts while U.S. and U.K. MCs have 5 and 2 times lower market value relative to their DCs. Sales figure and total assets figure of DCs remained lower than MCs across all countries, suggesting DCs are smaller in size in holding net worth of financial market wealth in any country. It is interesting to see how long-term debt (scaled by long-term debt and market value of equity) and short-term debt ratios (scaled by total assets) are used by DCs and MCs across different countries. For example, long-term debt is used heavily by MCs in Australia, U.S., U.K. and Malaysia, and the usage of long-term debt is more than double relative to DCs in those countries. However, an exception is Japan. Japanese DCs hold relatively more long-term debt in their capital structure than MCs which indicates that although Japanese DCs and MCs get financial assistance from their financial institutions and government (Ozawa, 1978); however, the international involvement of Japanese MCs may distorts the assistance that's provided by a bank-based financial market system. Further, the level of short-term debt of Australian, U.S., U.K. and Malaysian MCs capital structure are at least three times more than DCs. Japan is unique in this regard. Japanese DCs use slightly more short-term debt as they do for long-term debt relative to MCs. Note that the results are very similar across all years, even though Table 4.1 figures are based on 2004 financial end year data.

Table 4.1
Firm values and capital structure across 5 sampled countries

The following table shows the amount of market value, total sales and total assets that MCs and DCs hold across Australia (AU), United States (US), Japan (JP), United Kingdom (UK) and Malaysia (ML) in 2004. The figures are in millions and expressed in the country's local currency.

	AU		US		JP		UK		ML	
	DCs	**MCs**	**DCs**	**MCs**	**DCs**	**MCs**	**DCs**	**MCs**	**DCs**	**MCs**
Market Value	666	2342	155775	31440	248673	520085	3304	1828	672	2370
Sales	745	1940	8089	14245	112392	119577	527	1477	502	1564
Total Assets	882	2412	8684	18514	124207	128893	553	1814	1001	3149
Long-term Debt	221	535	2511	4062	24532	21419	110	349	223	562
Short-term Debt	34	136	207	1311	18946	18058	21	123	93	281
Sample	**994**	**1254**	**1371**	**1417**	**1093**	**814**	**719**	**1469**	**1861**	**964**

Table 4.2 further looks at how much each of the five countries' MCs involved in foreign direct investments (FDI) and it shows that, in the ranking, U.S. is the highest while Japan is the second highest and U.K., Australia and Malaysia are ranked after one another accordingly in the FDI abroad ranking list. The table also shows that over the years the FDI fluctuated in all those countries. This demands an investigation of FDI abroad impact and MCs' capital structure determinants.

Table 4.2
FDI structure for multinational firms across 5 sampled countries

The following table shows the Foreign Direct Investment (FDI of five countries: Australia (AU), United States (US), United Kingdom (UK), Japanese (JP) and Malaysia (ML). The amounts of FDI are in US$ and units are in millions. Note that any FDI that is lower than US$0.500 million is reported as '0'.

Countries	Projects and Amount of FDI	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
AU	**No. of Projects**	19	18	8	7	8	7	10	6	13	5
AU	**Amounts of FDI**	26.8	1.73	4.32	0.86	0.86	57.06	5.19	0	43.23	12.97
US	**No. of Projects**	347	463	411	445	624	622	654	445	440	372
US	**Amounts of FDI**	1419.63	1532.01	2066.46	1312.38	6983.82	2150.24	8734.97	5559.00	5138.83	3019.15
JP	**No. of Projects**	163	162	151	159	217	249	315	251	186	218
JP	**Amounts of FDI**	276.65	201.43	864.50	728.77	1494.71	1396.16	9866.61	2280.57	4702.05	3108.72
UK	**No. of Projects**	40	64	59	44	60	65	106	69	45	28
UK	**Amounts of FDI**	111.522	98.55	350.12	385.57	319.86	776.50	483.37	1259.80	271.47	224.78
ML	**No. of Projects**	2	1	3	2	1	1	3	2	1	3
ML	**Amounts of FDI**	0	0	8.64	0	0	0	0.86	0	0	0

Source: http://www.mof.go.jp/english/e1c008.htm : Ministry of finance - Japan

Table 4.2 was an attempt to enhance Table 4.1. MCs usual mode of foreign entry is through foreign direct investment. The purpose of Table 4.2 was to show how the MCs in the chosen sample countries expanded abroad through FDI across time and whether the intensity of foreign involvement had much impact on capital structure determinants. It is generally argued that as the foreign involvement increases in an international environment, MCs will be more prone to international risk exposure which is captured by the foreign sales. In addition, MCs are believed to have a different capital structure as well as capital structures determinants relative to their DCs due to their international involvement. This leads to hypotheses development followed by model selection that incorporates these determinants as the function of capital structure for DCs and MCs.

4.3 MULINATIONALITY AND MODIGLIANI & MILLER CAPITAL STRUCTURE THEORY

Modigliani and Miller (1958) provide a starting point for the discussion of capital structure choice, regardless of the degree of multinationality of a firm. Modigliani and Miller's (1958) discussion is limited from practical application by restrictive assumptions.[33] Theoretically, according to Modigliani and Miller (1958), capital structure choice is irrelevant to firm value. However, in reality, capital structure choice may be relevant to firm value.

According to Modigliani and Miller (1963), in the presence of taxes and the tax deductibility of interest payments (under the assumption that debt is default-free), firms are expected to be financed entirely by debt. However, since borrowing increases the likelihood of bankruptcy, and bankruptcy is costly, an optimal capital structure represents a level that balances the tax advantage of debt against the different costs associated with financial distress (Haugen & Senbet, 1978; Scott, 1976; Titman, 1984).

[33] Modigliani and Miller (1958) made the following assumptions: a) Securities issued by companies are traded in a perfect capital market; this is a frictionless market in which there are no transaction costs and no barriers to the free flow of information. b) There are no taxes. c) Companies and individuals can borrow at the same interest rate. d) There are no costs associated with the liquidation or reorganisation of a company in financial difficulty. e) Companies have a fixed investment policy so that investment decisions are not affected by financing decisions.

Borrowing, in addition to increasing bankruptcy costs, affects the likelihood of conflicts among equity holders, managers and debt holders. Agency problems resulting from debt emanate from conflicts between equity and debt holders due to the incentive of firms maximising their equity value instead of their total value (Jensen & Meckling, 1976). In this framework, equity holders of a leveraged firm are willing to invest in highly risky projects. If the investment is successful, the equity holder will achieve a high return and the firm will be solvent, but if it fails the firm will go bankrupt, and the debt holder will take over the firm and receive a value lower than the debt value.[34] According to Harris and Raviv (1990), equity holders prefer a firm to continue its current operation, even in liquidation. This means that debt financing reduces the costs of the conflicts to equity holders by giving the firm's debt holders the option of liquidation in the event of low cash flow. However, debt holders require information about the firm's prospects to be able to make liquidation decisions.

A theory of firms' capital structure is important to both researchers and managers, but no single theory completely explains the observed variation in capital structure (Shapiro, 1978; Agmon & Lessard, 1977). Empirical evidence shows that a firm's capital structure is affected by several firm-related characteristics including growth, earnings volatility, profitability, and non-debt tax shield (Friend & Lang, 1988; Titman & Wessels, 1988; Smiths & Watts, 1992; Gaver & Gaver, 1993; Homaifar, Zietz & Benkato, 1994). However, the majority of these studies have not considered the effect of these characteristics on a firm being a multinational corporation. The capital structure of MCs has been examined by Hughes, Logue and Sweeney (1975), Shapiro (1978), Michael and Shaked (1986), Fatemi (1988) and Lee and Kwok (1988) amongst others, but theories of capital structure for MCs are lacking.

Most empirical evidence on capital structure is based on U.S. firms. Studies based on the experience of a single country may not represent the effects of diversity of economic tradition

[34] In other words, the common stock in leveraged firms may be considered as a call option, written by debt holders. According to Black-Scholes' (1973) formula, riskier projects increase the value of the option (shift value from the debt-holders to equity holders). Debt holders anticipate the probability of this event when writing the debt contracts and will respond by demanding a higher interest.

and financial system across different countries on corporate capital structures (differential tax system, distinct bankruptcy and agency code, different accounting regulations and also different industry-specific characteristics). Companies operating under English-speaking economies (mainly U.S., U.K. and Australia) are known to have lower level of leverage than firms in non-English-speaking economies, (for example, Japan and Malaysia).[35] Agency costs and indirect bankruptcy costs are especially known to be higher in English-speaking countries due to the lack of long-term relationships between firms and creditors and of lack long term objectives of business management (Borio, 1990; Edward & Niber, 2000).

The intent of this chapter is to provide additional empirical analysis on capital structure literature across DCs and MCs in different economies. The studies that investigate the capital structure of corporations across different countries are somewhat dated, use limited data, or have a narrow focus on firm types (Lee & Kwok, 1988; Rajan & Zingales, 1995; Burgman, 1996; McClure, Clayton & Hofler, 1999; Booth et al., 2001). Therefore, this thesis investigates the different financial and institutional traditions of DCs and MCs in Japan, U.K., U.S., Australia and Malaysia. This helps to ascertain whether different financial and institutional traditions do impact on capital structure decisions. Secondly, the data for most of the previous studies do not cover the period through the 1990s when there were important developments in the globalisation of financial markets (McClure, Clayton & Hofler, 1999), especially when barriers to entry to many countries were removed and it provided firms with the opportunity for global expansion. Thus, this thesis examines whether there are systematic differences in the determinants of capital structure between DCs and MCs across countries, and whether there are additional, uniquely international factors that may help to explain the capital structure choice of MCs. Thirdly, given the problems potentially encountered by firms as they attempt to establish optimal global financial structures, it is important to determine whether financial norms and practices vary across countries. Therefore, this study investigates the country-driven institutional factors that are believed to affect capital structure for both MCs and DCs across

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[35] Antonios, Yilmaz and Krishna (2002).

Japan, U.K., U.S., Australia and Malaysia.[36] These countries represent different financial structures and traditions. The U.K. and U.S. are known to follow the English tradition where there are large numbers of publicly-listed companies, and hostile takeovers owing to agency conflicts are common (Rajan & Zingales, 1995; McClure, Clayton & Hofler, 1999). Japan follows a tradition where corporate decisions and restructuring are made through the involvement of banks and financial institutions (Wald, 1999). On the other hand, Malaysia is known to follow the Latinic tradition where corporate ownership structure can be characterised by family control, financial holdings, state ownership, cross-shareholdings, and where agency problems are internalised (Booth et al., 2001). Financial theory would suggest that in an efficient global market the capital structure of identical firms in different nations would be the same (McClure, Clayton & Hofler, 1999). If international market imperfection existed through the 1990s, capital structures and costs may be different among similar firms in different nations, and business advantages (or disadvantages) may provide profits (or costs) to firms incorporated in different countries. Fourthly, the industry effect on DCs' and MCs' capital structure is considered. Lastly, the relationship between financial structure and overseas operation especially for MCs has led in recent years to the development of a considerable literature that underlies its time-variant effects (Bernanke & Gertler, 1989; Greenwald & Stiglitz, 1993). Thus an intention of this chapter is to update the literature by shedding light on the role of these financial and institutional traditions on capital structure decisions across countries. The focus of this chapter is on answering the following questions:

- Does capital structure differ significantly between DCs and MCs and across countries, legal regimes and different tax regimes?
- Do additional international factors explain MCs capital structure decisions across countries?
- Are the predictions of conventional capital structure determinants improved by knowing the nationality of DCs and MCs?

[36] This aspect allows this thesis to compare the results with research obtained for US firms and to help explain any differences.

- Does industry play a significant role in determining DCs' and MCs' capital structure?
- Is capital structure of DCs and MCs time variant? Are the factors that affect cross-sectional variability in individual countries capital structures similar across countries for both MCs and DCs ?
- Final tests attempt to explain the speed of adjustment towards the target level of debt:
    - Do DCs and MCs long term leverage return to its target across countries (speed of adjustment or mean reversion effect)?
    - Do DCs and MCs short-term leverage return to its target across countries (speed of adjustment or mean reversion effect)?

The above questions are important, because institutional factors such as tax rates and business risk, profitability and growth can result in different financing patterns in DCs' and MCs' capital structure across countries, which then show up in firm-level data as well as aggregate data. Therefore, it is believed that the additional information and efficiency that can be extracted from a time series and cross-sectional data set can considerably improve the understanding of the relevance of financial market imperfections in different economies and will allow a better understanding of the determinants of firms' capital structure.

4.4 INTERNATIONAL CROSS-COUNTRY CAPITAL STRUCTURE THEORY

The aspects that have been previously indicated as determinants of capital structure have been extended by studies of cross-country comparisons. In this respect, we highlight the work of Rajan and Zingales (1995) whose first objective was to investigate whether the capital structure in the G-7 countries is related to factors similar to those appearing to influence the capital structure of U.S. firms. Although firms have a fairly similar capital structure across the G-7 countries,[37] Rajan and Zingales (1995) find several differences. They argue that the institutional characteristics that affect capital structure are: tax code, bankruptcy laws, state of development of bond markets and patterns of ownership. In a more descriptive paper on differences in

[37] G-7 countries are Japan, France, United States, United Kingdom, Canada, Germany and Italy.

capital structure across the G-7 countries, McClure, Clayton and Hofler (1999) obtain empirical results that support significant differences. In another recent paper, Wald (1999) investigates the firm characteristics that affect capital structure in France, Germany, Japan, U.K. and U.S. As with Rajan and Zingales (1995), he finds similar firm factors across countries, but also some significant differences. The explanation of these differences, according to Wald (1999), is that institutional features may be significant determinants of capital structure.

In line with the analysis of the above papers on cross-country comparisons, it is also likely that domicile country effects impact on capital structure (McClure, Clayton & Hofler, 1999). This includes different tax codes, bankruptcy codes and agency costs which could have a differing influence on capital structure for MCs compared with DCs across countries. Financial theory would suggest that in an efficient global capital market the capital structure (and costs) of identical firms in different nations would be the same. Empirically, similar firms would trend towards similar financial structures and costs, unless there are still fundamental differences in the national capital markets in which they operate and barriers exist to the efficient flow of information and capital across countries. Since market imperfection exists, actual capital structure may be different among similar firms in different nations, and business advantages (or disadvantages) may provide profits (or costs) to firms incorporated in different countries. For example, firms in developing countries are much more highly leveraged than their counterparts in developed countries, which means the link between the corporate sector and the financial system is more important than in developed countries. Further, there is also some weak evidence that larger countries have higher debt (La Porta, Lopez-de-Silanes, Shleifer and Vishny – hereafter, LLSV 1997).

The financial manager of the MCs is faced with various tax structures, changing exchange rates, barriers to capital flows, and the possibility of financial market segmentation (Kornbluth and Vinso, 1982).[38] The manager must be concerned not only with fund flows, but also with the

[38] Some preliminary work of Solnik (1974) and Pogue and Solnik (1975) attempts to determine the impact of such international factors on the pricing of the securities of the MCs.

risk that the value of these flows will change owing to changing exchange rates. Finally, the manager must be concerned with operating under widely differing governmental policies.

If it is assumed that the goal of management is to maximise the value of the firm, it can be shown that it is necessary to obtain financing at the lowest cost. For MCs, which have access to funds in many countries, this goal would be consistent with minimising the cost of capital for the consolidated MCs. However, market imperfections and differing governmental policies dictate a consideration of the financial structures of the individual subsidiaries. Therefore, it has been observed by Stonehill and Stitzel (1969) and others that the same industry will have different capital structures in different countries since governments across countries can tax, regulate, or otherwise influence future earnings which vary from the MCs' domicile country.

Further, the decade of the 1980s has seen the increasing globalisation of product and capital markets and therefore the previously identified national capital structure differences based on an older data set and a limited number of nations may no longer be valid. Therefore, it is important that this study investigates country effect as a determinant on capital structure for both DCs and MCs.

4.4.1 Legal Regime

According to La Porta et. al (2000) there are two alternative legal regimes – a common-law system based on judicial precedent and a civil-law system based on formal codes. They argue that the type of legal regime a country adopted at the time continues to affect its economic performance in dramatic ways. They find that countries whose legal systems are based on civil law have systematically weaker environments for business than those whose legal systems are based on Anglo-American common law: Common-law countries offer external suppliers of finance, whether shareholders or creditors, better protection to debt and equity holders than countries with legal systems based on civil law (La Porta et. Al, 2000, 2000). Under the Anglo-American system of common law, legal rules can evolve in accordance with businesses' needs. On the contrary; however, common law codes are revised relatively infrequently and, as a result, their provisions are likely to become increasingly outmoded as the economy develops (Posner 1973; Priest 1977; Beck, Demirguc-Kunt & Levine, 2002). Further, civil law codes were creations of highly interventionist government's intent on consolidating their power over society, whereas the English common law was shaped by parliament's struggle to limit the power of the king and so was more concerned with restraining government and protecting individual rights (La Porta et. al, 2000). They further conjectured that the differences in the nature and effectiveness of financial systems around the world can be traced in part to the differences in investor protections against expropriation by insiders, as reflected by legal rules and the quality of their enforcement. La Porta et. al (2002) presented evidence indicating that legal rules protecting creditors and investors and the quality of enforcement differ greatly and systematically across countries. Common law countries offer creditors stronger legal protections against managers. They have the highest incidence of no automatic stay on assets; with two exceptions, they guarantee that secured creditors are paid first; they frequently preclude managers from unilaterally seeking court protection from creditors; and they have far and away the highest incidence of removing managers in reorganization proceedings. However, the U.S. is actually one of the most anticreditor common law countries because it permits automatic stay on assets, allow unimpeded petition for reorganisation, and lets managers keep their jobs in reorganisation (La Porta et. al, 2000). Law differs a great deal across countries, and in particular those countries differ because they come from different legal families. Relatively speaking, common law countries protect investors the most, civil law countries protect investors the least (La Porta et. al, 2000).

4.4.2 Tax Regime

The impact of taxes on corporate financial decision-making has been the focus of extensive research since Modigliani and Miller (1958). In a world with only corporate taxes and no personal taxes, the tax deductibility of interest within the corporation creates a clear preference for debt in the corporate capital structure. With both corporate and personal taxes, the preference for debt is less obvious and will depend upon the rates of tax on interest, dividends and capital gains as well as the tax rules governing tax arbitrage. The empirical evidence on the influence of corporate taxes on capital structure choice is conflicting and inconclusive. Recent work by MacKie-Mason (1990) and Graham (1996) suggests that the failure of earlier studies to find a relationship between capital structure decisions and taxes can in part be attributed to the proxies used to estimate the firms' marginal tax rate. Graham (1996) finds that high tax rate firms issue more debt than low tax rate firms. Givoly et. al (1992) examine the cross-sectional relationship between corporate taxes and capital structure changes. They find evidence consistent with both corporate and personal taxes affecting capital structure decisions. In an international setting, Collins and Sekely (1983) find no significant relationship between the corporate tax rate and cross country differences in capital structures. However, Sekely and Collins (1988) do find a significant country influence on capital structure.

4.4.3 Other Issues

In addition to industry influence in capital structure determination, macroeconomic conditions may play a role in determining capital structure as it induces time-series and cross-sectional heterogeneity in firm behaviour. For example, time variations in macroeconomic conditions, such as changes in relative pricing of asset classes, and the risk that stems from market factors that affect most firms, such as inflation, recessions, high interest rates, can lead a given firm to choose different capital structures at different points in time, other things being equal (Broaden and Samii, 2001).

Capital structure choices vary over time and across firms. For example, aggregate equity issues vary pro-cyclically and aggregate debt issues vary counter-cyclically for firms that access public financial markets (Korajczyk & Levy, 2003). Meanwhile, firms that exhibit higher degrees of financial constraints do not exhibit these pronounced counter-cyclical debt issue patterns.[39] They further suggest that a negative relationship exists between macroeconomic variables and leverage which seems to be consistent with the pecking order theory. In a graphical time series

[39] Specifically, Choe et al. (1993) show that aggregate seasoned primary equity issues are pro-cyclical and debt issues are counter-cyclical. Korajczyk et al. (1990) show that aggregate equity issue are positively related with equity market performance. Gertler and Gilchrist (1993) show that aggregate net debt issues (public and private) increase for large firms but remain flat for small firms following recessions associated with a monetary contraction. Gertler and Gilchrist (1994) show that aggregate net short-term debt is more stable over the business cycle for small firms.

of leverage ratio (debt to asset) analysis, they showed that there is a systematic peak, in corporate leverage ratios that occurs during economic downturns over the last 50 years on U.S. data. However, a trade-off model would imply pro-cyclical leverage, since during expansions (when the equity market is performing well, expected bankruptcy costs are lower, firms are more likely to have taxable income to shield, and firms have more free cash) debt should be more attractive.

The 1997 Asian crisis is the 4^{th} international financial crisis. The Asian crisis of 1997, despite prompt and concerted action by developing countries, industrialised countries, and international organisations to contain it, quickly and ferociously spread to North Asian, Latin, and Eastern European economies to varying degrees. In fact, this Asian crisis pushed one-third of the globe into recession during 1998 (World Investment Report, 2005). The crisis has raised a variety of questions not only about the future of the region's economy, but also about the impact of the crisis on MCs and the world economy. Countries are increasingly connected by trade and investment, so a downturn in one hurts exports and investment of another. Countries also compete against one another. Most domestic borrowers, for example, were unhedged against exchange rate risk, making them increase their foreign debt load significantly when a borrowing country's exchange rate changes dramatically (Kim and Haque 1997).

4.5 DATA AND METHODOLOGY

This chapter use 6038 DCs and 5918 MCs across Australia, U.S., Japan, U.K. and Malaysia over 1995-2004. The sample has been explained in detail in Chapter 2. The following five models have been employed to investigate the capital structure determinants for DCs and MCs across countries.

4.5.1 Model I

$$Leverage\ (L)_{(i,t)} = \beta_0 + \sum \beta_1 X_{International\_factors(i,t)} + \sum \beta_2 X_{Tradeoff\_factors(i,t)} + \sum \beta_3 X_{Firm\_peckingoreder(i,t)} + e_{(i,t)}$$

Model I represents the multivariate regression for DCs' and MCs' long-term debt ratios determinants across the five sample countries. Model I assumes that DCs' and MCs' leverage ratios are determined by three international factors (diversification, foreign exchange risks and political risks), seven trade-off theory related factors (bankruptcy risks, non-debt tax shield, beta, average tax ratios, size, collateral value of assets and age) and four pecking order related factors (profitability, cash dividends, free cash flows and growth). The purpose of this model is to estimate the target long-term debt level of DCs and MCs independently. Also, this model is different from the subsequent models in a sense that Model I independently determines the explanatory factors for DCs and MCs. Further, this model does not make any assumption about the distribution of DCs and MCs observations. This model is performed on a sample of 6038 DCs and 5918 MCs companies across Australia, U.S., Japan, U.K. and Malaysia

4.5.2 Model II

$$Leverage\ (L)_{(it)} = \beta_0 + \beta_1\ MULT_{i,t} + \sum \beta_2 X_{International\_factors(i,t)} + \sum \beta_3 X_{Tradeoff\_factors(i,t)} + \sum \beta_4 X_{Firm\_peckingorder(i,t)} + e_{(it)}$$

Model II is a slight modification of Model I and uses a pooled sample of DCs and MCs. The common fourteen variables are similar to Model I except $\beta_1 MULT_{it}$. This additional factor of $\beta_1 MULT_{it}$ is introduced to identify whether being a multinational firm has any additional explanatory power to determine the capital structure. Even though Model I directly captures the effect of the MCs related issues, there are other factors (e.g. inflation, interest-rates, subsidiaries' geographical related issues, economic growth, market efficiency etc.) that may also explain the MCs capital structure which our dataset is unable to create any variables to capture. Therefore, the variable $\beta_1 MULT_{it}$ attempts to incorporate any additional information for MCs' debt payouts that is not captured by using Model I. Therefore, after pooling the sample of DCs and MCs, the additional variable $\beta_1 MULT_{it}$ takes a value of unity when the corporation is a multinational, otherwise it is 0 (DCs). Further, with slight modification, this model is also used to test industry influence and time effect in adding industry and time dummy variables.

4.5.3 Model III

$$Leverage\ (L)_{(it)} = \beta_0 + \beta_1\ MULT_{i,t} + \sum \beta_2 X_{International\_factors(i,t)} + \sum \beta_3 X_{Tradeoff\_factors(i,t)} + \sum \beta_4 X_{Firm\_peckingorder(i,t)} + MULT_{i,t} * \sum \beta_5 X_{International\_factors(i,t)} + MULT_{i,t} * \sum \beta_6 X_{Tradeoff\_factors(i,t)} + MULT_{i,t} * \sum \beta_7 X_{Firm\_peckingorder(i,t)} + e_{(it)}$$

Model III is a further extension of Model II. Model III adds additional interacting dummy variables for each of the fourteen common explanatory variables. The purpose of this model is to differentiate the significance of slope difference in each of the common fourteen variables between DCs and MCs. This model is designed to encapsulate additional information, which is the difference of DCs and MCs debt ratio level determinants explanatory power to verify the payouts level decision (the justification of variable differences between DCs and MCs are discussed in Chapter 3).

4.5.4 Model IV

The final equation of the multivariate model is as follows:

$$Leverage\ (L)_{(it)} = \beta_0 + \beta_1\ MULT_{i,t} + \sum \beta_2 X_{International\_Factors(i,t)} + \sum \beta_3 X_{Tradeoff\_Factors(i,t)} + \sum \beta_4 X_{Firm\_peckingord} + \sum \beta_5 X_{Country\_Dymmy(i,t)} + \sum \beta_6 X_{Tax\_System(i,t)} + \sum \beta_7 X_{Legal\_Regimes(i,t)} + e_{(it)}$$

For an intensive investigation for leverage and its determinants for DCs and MCs across sample countries, we apply regression modelling technique. Generally, there is no consensus model of leverage behaviour. In its absence, this section fits the data to some alternative models that include MCs' effect. Theoretical research shows that leverage is influenced by firm, industry and country factors. The determinants include international, trade-off and pecking order theory factors, which are discussed in details in Chapter 3. Further, industry factors include industry regulations, growth levels, profitability and risks. Leverage is also influenced by taxation policy, legal systems and broader economic conditions that are country-specific. In relation to the determinants of leverage for MCs, very little is known. The number and size of MCs has grown substantially over the past few decades and the effect these organisation have on leverage is unfamiliar.

4.5.5 Model V

Model V is developed following Lintner's (1956) model. This model will be emploed to test the speed of adjustment of target level of debt for DCs and MCs across countries. The framework for the test of leverage is as follows:

$$LEVERAGE_{i,t} - LEVERAGE_{i,t-1} = \gamma_0 + \gamma_1(LEVERAGE_{i,t}^* - LEVERAGE_{i,t-1}) + e_{i,t}$$

In Model V the target level $LEVERAGE_{it}^*$ is obtained using Model I for DCs and MCs to test behaviour of leverage over the period of 1995-2004. This is to test whether DCs and MCs have leverage targets and does leverage return to its target. The partial adjustment framework of Model V and Model I nests the trade-off theory, firms have leverage targets and they move toward the targets every period. The fitted values from Model I are estimates of the targets ($LEVERAGE_{it}^*$), and the speed of adjustment coefficient γ_1 in Model V and measures how adjustment costs slow the movement of leverage towards its target.[40] The parameter γ_1 may be interpreted in terms of the relative cost being away from the optimal leverage and the cost of recapitalisation (adjusting). The adjustment rate coefficient γ_1 depends on the ratio of the marginal cost of being away from the target to the marginal cost of adjustment. Obviously, the higher the adjustment cost, the slower the rate of adjustment. A full adjustment will occur if the

[40] To get a better idea of how γ_1 works, I present the following: When $\gamma_1 = 0$ then it reflects no adjustment to the target; when $0 < \gamma_1 < 1$ then it reflects partial adjustment to the target due to a positive cost of adjustment and when $\gamma_1 = 1$ then it reflects a full adjustment to the target (ie., the adjustment is costless).

cost of adjustment is too low or the cost of being away from the target is too high. Further, firms will not adjust their debt toward the target level of leverage if the cost of being away from the target leverage is zero.

The simple pecking order theory predicts that in the estimate of model V the speed of adjustment, γ_1, is indistinguishable from zero, whereas the trade-off model says it is reliably positive for firms in general. Model V will be employed for both short-term debt and long-term debt across DCs and MCs.

4.6 RESULTS

4.6.1 General Overview of MCs' and DCs' Difference in Capital Structure

Table 4.3 provides details of the average annual level of the various types of leverage for the five countries for each year from 1995 to 2004. From this table a number of trends in leverage can be seen and it is also shown that different types of debt ratios vary considerably between DCs and MCs across countries.

Over the period of 1995 to 2004, Australian MCs' short-term debt range between 0.049 to 0.067 and long-term debt ratio (LTD_MV) in MCs slightly increased to 0.178 in 2002 and gradually declined in the following years. The long-term debt ratio (LTD_BV) for Australian MCs also shows a similar pattern. However, total debt for MCs increased over the years from 0.127 to 0.134 during 1995 to 2004 and this is to the increase in the book value of debt. Debt maturity shows a strong increase during 1997 to 2004 with a range of 0.297 to 0.715. For DCs, the short-term debt falls rapidly 2002 onwards while the long-term debt ratios (LTD_MV) increased in year 2002 and takes a sudden reduction to 0.059. DCs' long-term debt (LTD_MV) and total debt had a similar pattern during this 10 year time period (e.g. 0.044 to 0.072 and 0.053 to 0.096). Overall, the average short-term debt, book and market value of long-term debt and total debt for DCs are lower than MCs. Further, Table 4.3 also shows that debt maturity for Australian MCs is slightly lower than its DCs.

U.S. DCs showed an upward movement in short-term debt during 1995 (0.036) to 2000 (0.042), however, then it started declining until 2004 (0.016). During this 10-year period U.S. MCs maintained higher short-term ratios relative to U.S. DCs. Interestingly, U.S. DCs show higher market value of long-term debt ratios than MCs and a similar pattern is also observed for the book value of long-term debt. The increase of long-term debt ratios is due to an increase in the holding of short-term debt. U.S. DCs' and MCs' debt maturity shows a parallel directional increasing pattern from 2001 to 2004.

Japanese DCs' and MCs' short-term debt decreased over the period of 1995 to 2004 from 0.134 to 0.092 and 0.137 to 0.082 respectively. The long-term market value of debt ratios for DCs also decreased from 0.264 to 0.185 for the same period. MCs on the other hand had no regular upward or downward trends; however, the MCs' long-term book value of debt ratios had a consistently downward movement over the 10 years period from 0.215 to 0.156. As for debt maturity, no apparent upward or downward movement is observed.

No particular trend or pattern is observed for U.K. DCs and MCs long-term debt ratios. The short-term debt ratios for U.K. DCs shows a declining trend from 1995 (0.073) to 1999 (0.64) and a sudden rise in 2000 (0.074), then a sharp consistent decline until 2004 (0.038). Also, for MCs' it shows a sharp decline in short-term debt ratios after 2000 onwards.

Malaysian DCs and MCs exhibit a mixed pattern for both short-term debt ratios and long-term debt ratios. Over the 10-year period the DCs indicate a net increase of debt maturity from 0.365 in 1995 to 0.539 in 2004 while MCs also experience a net increase of debt maturity from 0.504 to 0.711 from 1995 to 2004. Overall, Malaysian MCs show higher debt maturity than their counterpart DCs.

Table 4.3
5 sampled countries' capital structure across 10 years

Table 6 displays the average of different types of debts from 1995 to 2004. In the first column, the acronyms of AU, US, JP, UK and ML are Australia, United States, Japan, United Kingdom and Malaysia respectively. The debt ratios are measured as long-term debt to long-term debt and market value of assets which is indicated by $LTD\_MV_{i,t}$. $LTD\_BV_{i,t}$, $STD\_BV_{i,t}$ and $TOT\_LTD\_BV_{i,t}$ are measured as long-term debt, short-term and total debt to total book value of asset respectively. Debt maturity is calculated as long-term debt over total debt (Fan et al., 2003).

	DCs					MCs				
Years	Short Term Book Debt Ratios	Long Term Market Debt Ratios	Long Term Book Debt Ratios	Total Book Debt Ratios	Debt Maturity	Short Term Book Debt Ratios	Long Term Market Debt Ratios	Long Term Book Debt Ratios	Total Book Debt Ratios	Debt Maturity
AU - 95	0.051	0.020	0.044	0.053	0.305	0.049	0.027	0.116	0.127	0.675
AU - 96	0.051	0.013	0.043	0.057	0.328	0.040	0.022	0.075	0.085	0.454
AU - 97	0.042	0.048	0.045	0.056	0.380	0.058	0.052	0.063	0.093	0.297
AU - 98	0.052	0.048	0.045	0.084	0.452	0.050	0.060	0.056	0.078	0.368
AU - 99	0.046	0.087	0.063	0.129	0.458	0.049	0.021	0.035	0.062	0.351
AU - 00	0.047	0.081	0.064	0.107	0.376	0.045	0.035	0.064	0.088	0.406
AU - 01	0.056	0.100	0.088	0.126	0.564	0.054	0.141	0.137	0.162	0.603
AU - 02	0.051	0.109	0.103	0.139	0.700	0.067	0.178	0.122	0.185	0.705
AU - 03	0.045	0.059	0.065	0.097	0.668	0.046	0.070	0.094	0.123	0.688
AU - 04	0.038	0.054	0.072	0.096	0.726	0.050	0.060	0.104	0.134	0.715
US - 95	0.028	0.412	0.279	0.307	0.897	0.036	0.308	0.209	0.246	0.817
US - 96	0.030	0.427	0.267	0.297	0.904	0.036	0.282	0.199	0.235	0.831
US - 97	0.026	0.418	0.296	0.322	0.903	0.036	0.269	0.213	0.250	0.847
US - 98	0.027	0.423	0.293	0.320	0.900	0.040	0.314	0.235	0.274	0.845
US - 99	0.031	0.521	0.292	0.330	0.901	0.040	0.337	0.239	0.278	0.832
US - 00	0.036	0.497	0.290	0.326	0.891	0.042	0.347	0.234	0.277	0.823
US - 01	0.027	0.530	0.307	0.334	0.915	0.031	0.371	0.251	0.282	0.870
US - 02	0.025	0.559	0.304	0.328	0.920	0.020	0.427	0.265	0.286	0.920
US - 03	0.016	0.458	0.278	0.294	0.940	0.015	0.364	0.256	0.270	0.935
US - 04	0.018	0.417	0.274	0.292	0.924	0.016	0.330	0.228	0.244	0.935
JP - 95	0.134	0.264	0.218	0.348	0.618	0.137	0.151	0.215	0.352	0.617
JP - 96	0.135	0.258	0.201	0.329	0.597	0.138	0.175	0.207	0.353	0.597
JP - 97	0.142	0.352	0.201	0.363	0.537	0.142	0.223	0.200	0.351	0.589
JP - 98	0.137	0.295	0.231	0.361	0.591	0.139	0.202	0.208	0.350	0.581
JP - 99	0.127	0.318	0.257	0.390	0.620	0.130	0.199	0.203	0.337	0.600
JP - 00	0.127	0.278	0.224	0.342	0.602	0.123	0.195	0.186	0.315	0.571
JP - 01	0.126	0.254	0.216	0.331	0.593	0.126	0.202	0.184	0.314	0.578
JP - 02	0.121	0.231	0.205	0.308	0.611	0.117	0.212	0.187	0.295	0.611
JP - 03	0.101	0.213	0.195	0.279	0.645	0.102	0.133	0.145	0.249	0.521
JP - 04	0.092	0.185	0.188	0.268	0.632	0.082	0.109	0.156	0.244	0.614
UK - 95	0.073	0.089	0.113	0.167	0.549	0.070	0.057	0.093	0.142	0.534
UK - 96	0.070	0.109	0.099	0.149	0.454	0.060	0.077	0.085	0.129	0.581
UK - 97	0.069	0.154	0.102	0.153	0.599	0.065	0.097	0.093	0.141	0.616
UK - 98	0.061	0.061	0.124	0.151	0.604	0.067	0.136	0.099	0.138	0.595
UK - 99	0.064	0.065	0.070	0.098	0.517	0.065	0.146	0.105	0.147	0.612
UK - 00	0.074	0.057	0.057	0.107	0.457	0.069	0.140	0.090	0.129	0.492
UK - 01	0.068	0.066	0.070	0.099	0.535	0.068	0.154	0.105	0.143	0.546
UK - 02	0.060	0.047	0.072	0.098	0.560	0.051	0.110	0.080	0.106	0.490
UK - 03	0.035	0.016	0.040	0.051	0.623	0.036	0.046	0.071	0.092	0.616
UK - 04	0.038	0.012	0.030	0.056	0.430	0.037	0.059	0.066	0.083	0.535
ML - 95	0.104	0.052	0.080	0.179	0.365	0.107	0.133	0.135	0.236	0.504
ML - 96	0.120	0.068	0.107	0.222	0.425	0.106	0.178	0.166	0.236	0.523
ML - 97	0.140	0.304	0.107	0.244	0.426	0.143	0.423	0.147	0.293	0.437
ML - 98	0.146	0.277	0.125	0.278	0.432	0.144	0.418	0.147	0.284	0.499
ML - 99	0.136	0.236	0.120	0.259	0.434	0.125	0.375	0.155	0.284	0.520
ML - 00	0.125	0.288	0.123	0.249	0.438	0.124	0.389	0.151	0.268	0.502
ML - 01	0.117	0.299	0.132	0.258	0.511	0.107	0.383	0.139	0.255	0.498
ML - 02	0.110	0.342	0.141	0.250	0.531	0.110	0.377	0.131	0.248	0.559
ML - 03	0.079	0.174	0.133	0.222	0.563	0.062	0.269	0.160	0.236	0.707
ML - 04	0.102	0.261	0.137	0.243	0.539	0.085	0.332	0.156	0.243	0.711

A summary of Table 4.3 is provided in Table 4.4 for the period of 1995-2004. Table 4.4 shows that on average U.S. firms (both DCs and MCs) hold the least amount of short-term debt (0.026

and 0.031) among the other four sample countries' DCs and MCs. On the contrary, Japanese DCs use slightly a higher proportion of short-term debt (0.125) than the MCs (0.124) and the proportion of short-term debt for Japanese DCs and MCs are relatively higher compared to the other four countries. Interestingly, U.S. and Japanese DCs and MCs hold a higher proportion of long-term market and book debt ratios than the other three countries. To conclude, the most likely reason for both the greater and lesser averages of long-term debt ratios is the stability of the firms' financial needs and the state of the firms' financial and operating positions. Further, the fluctuations of the various types of debt may be due to the stability of debt markets and the state of optimism of the national economy in all five countries (Michaelas, Chittenden & Potziouris, 1999; Mohamad, 1995). Figure 4.1 is the graphical representation of Table 4.4.

Table 4.4
Average annual capital structure across 5 sampled countries: 1995-2004

Table 4 displays the annual average of different types of debts from 1995 to 2004. In the first column, the acronyms of AU, US, JP, UK and ML are Australia, United States, Japan, United Kingdom and Malaysia respectively. The measurements of different types of debt were discussed in Table 4.3.

	DCs					MCs				
	Short Term Book Debt Ratios	Long Term Market Debt Ratios	Long Term Book Debt Ratios	Total Book Debt Ratios	Debt Maturity	Short Term Book Debt Ratios	Long Term Market Debt Ratios	Long Term Book Debt Ratios	Total Book Debt Ratios	Debt Maturity
AU	0.048	0.066	0.071	0.106	0.574	0.051	0.074	0.092	0.123	0.567
US	0.026	0.469	0.288	0.315	0.909	0.031	0.337	0.233	0.265	0.866
JP	0.125	0.261	0.213	0.330	0.605	0.124	0.180	0.188	0.315	0.588
UK	0.063	0.061	0.082	0.120	0.533	0.059	0.097	0.090	0.127	0.568
ML	0.120	0.242	0.124	0.247	0.474	0.113	0.334	0.148	0.260	0.549

Figure 4.1
Debt structure across 5 countries: 1995-2004

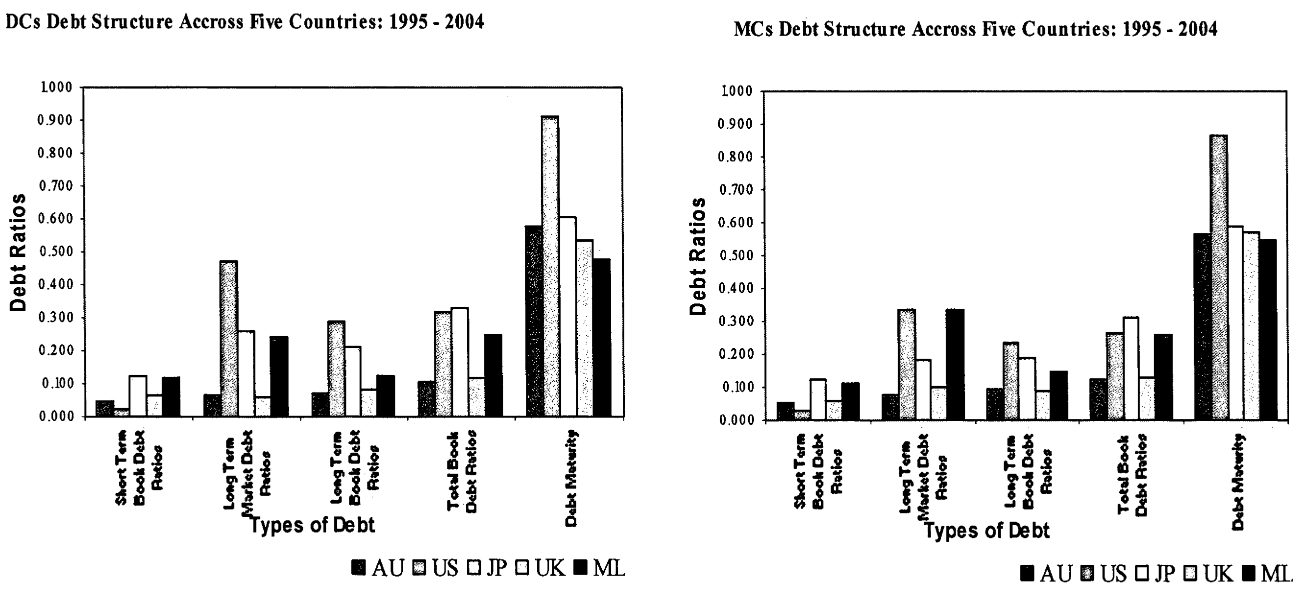


Figure 4.2
Comparison of DCs' and MCs' long-term debt across 5 countries over 10 years

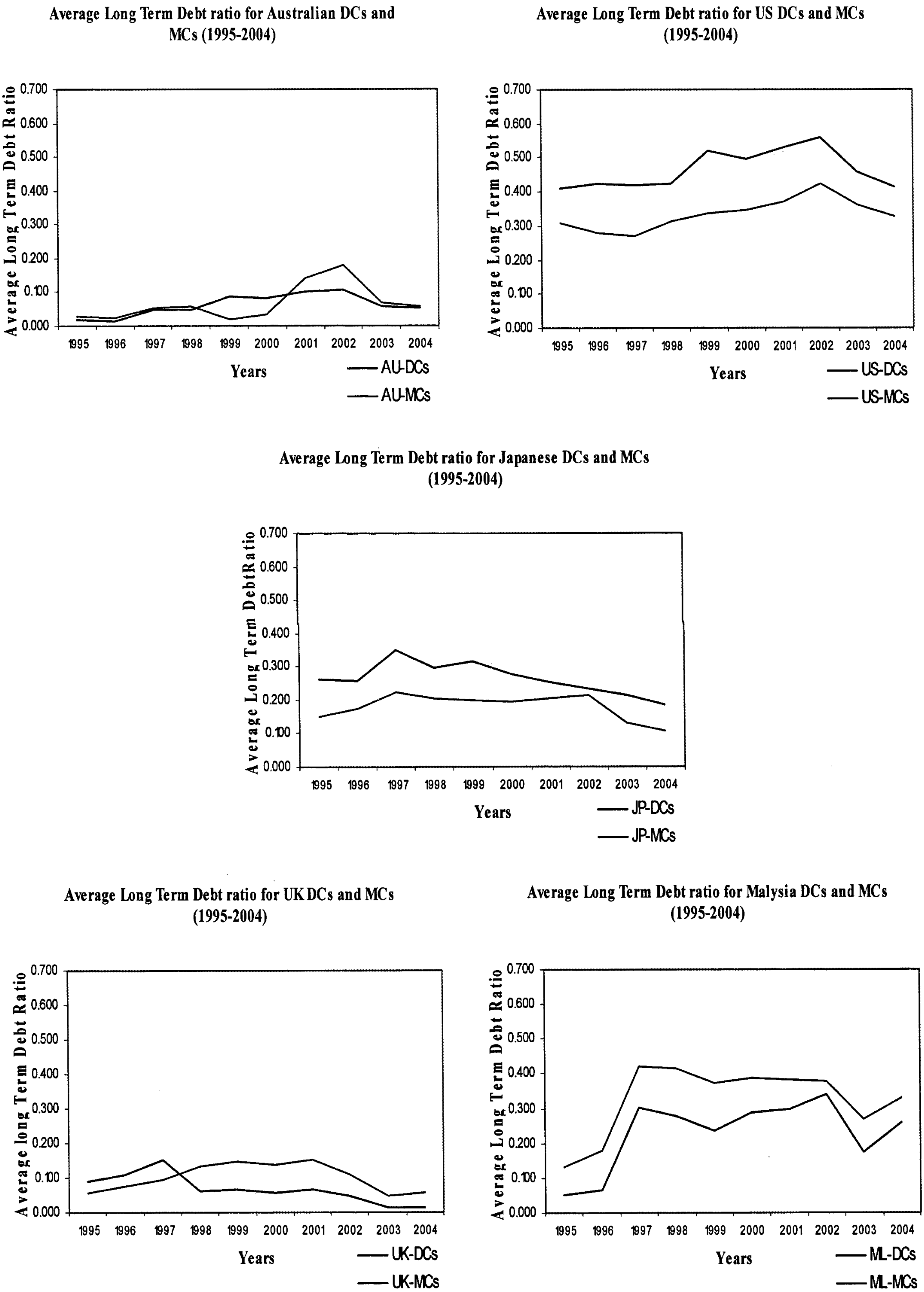


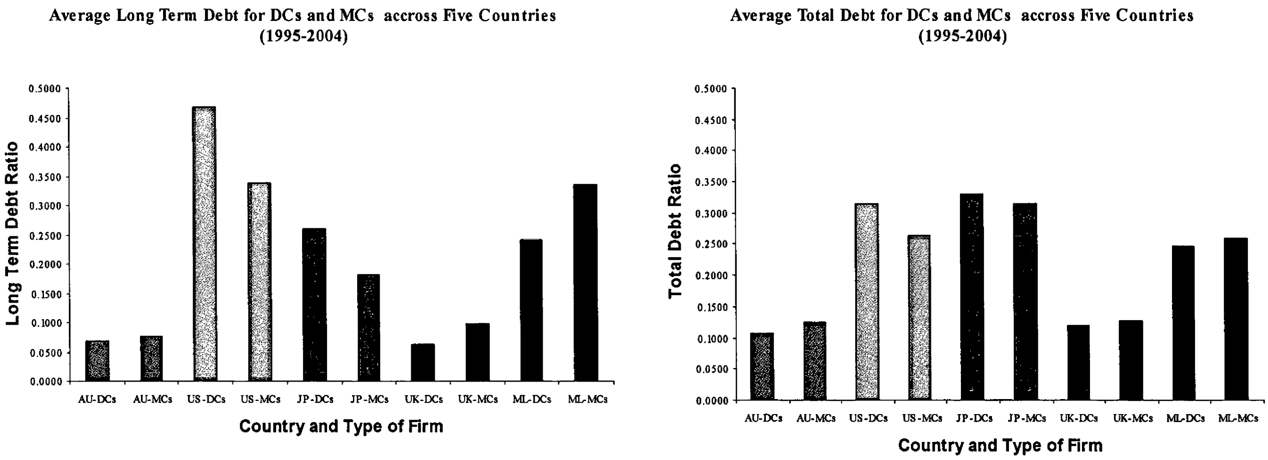
Figure 4.1 depicts that MCs of Australia, U.S. and U.K. use comparatively less short-term debt than Japanese and Malaysian and this is similar to DCs. The book value of long-term debt of Australian DCs is low while DCs in the U.S. have high book value of long-term debt. Australian DCs and MCs have comparatively lower total debt than that of the four countries. Overall, there seems to be a symmetrical behaviour of debt to maturity between DCs and MCs.

A further graphical elaboration of Table 4.4, especially the market value of long-term debt (which is the main focus of this chapter), is presented in Figure 4.2. Figure 4.2 displays the trend of long-term debt ratios for DCs and MCs over the last 10 years. It shows that on average long-term debts for DCs and MCs move in similar direction in U.S., Japan and Malaysia. However, DCs and MCs in Australia do not show similar trend. The graph also depicts that in most cases DCs have more debt than MCs and this is consistent with Lee and Kwok (1988) and Doukas and Panzalis (2003). It also reveals that over 10 years (1995-2004) debt ratios varied across countries for both DCs and MCs, and this may be due to time-variant factors (Love & Wickramanyaake, 1996). This result is consistent with Homaifar, Zietz and Benkato's (1998) argument that firms adjust the debt ratios over time due to macroeconomic issues and fluctuations in corporate income tax.

4.6.2 Analytical Discussion of DCs' and MCs' Difference in Capital Structure

Figure 4.3 presents a direct graphical comparison of average long-term and total debt ratios comparison for sample countries DCs and MCs. Table 4.5 illustrate t-tests results to investigate if capital structures are different between DCs and MCs (Panel A) and also whether different legal constitutions and different tax system impacts capital structure (Panel B). Figure 4.3 indicates that a similar pattern is observed between DCs and MCs across countries for both long-term debt ratios and total debt ratios. Australian, U.K. and Malaysian MCs hold higher debt ratios than the DCs while U.S. and Japanese MCs demonstrate the opposite.

Figure 4.3
Average long-term and total debt ratios between DCs and MCs across 5 countries



However, Figure 4.3 fails to show any significant relationship and therefore a test is conducted to tease out more about the capital structure behaviour between DCs and MCs across countries and the results are presented in Table 4.5.

Table 4.5
Mean equality t-test for DCs' and MCs' capital structure for 5 sampled countries

PANEL A

	AU		US		JP		UK		ML	
	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs
Short-term debt										
Mean	0.040	0.041	0.047	0.050	0.153	0.160	0.050	0.051	0.154	0.149
t-test		0.153		1.132		1.473		0.031		0.452
Long-term debt										
Mean	0.066	0.074	0.469	0.337	0.261	0.180	0.097	0.261	0.242	0.334
t-test		0.554		**10.670[a]**		**6.612[a]**		**13.596[a]**		**5.201[a]**
Total debt										
Mean	0.106	0.123	0.315	0.265	0.330	0.315	0.120	0.120	0.247	0.260
t-test		1.254		**8.716[a]**		**1.956[b]**		0.809		1.128
Sample	994	1254	1371	1417	1093	814	719	1469	1861	964

PANEL B

	Type of Firms		Common Law		Civil law		Classical Tax		Imputation Tax	
	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs
Short-term debt										
Mean	0.112	0.090	0.101	0.060	0.153	0.160	0.120	0.095	0.048	0.053
t-test		**9.066[a]**		**15.328[a]**		1.473		**9.681[a]**		1.083
Long-term debt										
Mean	0.255	0.223	0.254	0.242	0.261	0.180	0.279	0.243	0.078	0.086
t-test		**5.346[a]**		**1.679[b]**		**6.612[a]**		**5.350[a]**		0.720
Total debt										
Mean	0.258	0.248	0.240	0.219	0.330	0.315	0.276	0.263	0.121	0.121
t-test		**2.626[a]**		**4.772[a]**		**1.956[a]**		**3.127[a]**		**1.287[c]**
Sample	994	1254	1371	1417	1093	814	719	1469	1861	964

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

Table 4.5 shows that on average the short-term debt for MCs in Australia, U.S., Japan and U.K.'s MCs' have relatively higher than DCs (Panel A) over 10-years period; however, no significant relationship is observed. DCs' and MCs' debt ratios are significantly different from each other across U.S., Japan, U.K. and Malaysia (t=10.67; 6.61; 13.60 and 5.20 respectively). While the U.S. and Japanese MCs hold significantly less long-term debt in their capital structure relative to DCs, U.K. and Malaysia shows contradictory results indicating DCs have less debt than MCs and it is significant at the 1% level. However, in Australia the difference of capital structure between DCs and MCs remains insignificant. The results for U.S. and Japan are consistent with Lee and Kwok (1988), Burgman (1996), Chen et al. (1997), Homaifar, Zietz and Benkato (1998) and Doukas and Pantzalis (2003), suggesting MCs carry less debt than DCs. However, other research have suggested that MCs should be able to support more debt in their capital structures than DCs, arguing that MCs operate in several less than perfectly correlated economies and that this geographic diversification should translate into lower earnings volatility, and hence a lower probability of bankruptcy (Butler, 1999). Table 4.5 show that MCs have significantly less debt than DCs across the countries of U.S. and Japan suggest that either international diversification does not lead to a reduction in overall business risk. Further, Panel B also shows that MCs hold lower short-term, long-term and total debt ratios relative to DCs counterparts regardless of countries of origin (t=9.066; 5.346; 2.626). Results also show that DCs in common law countries hold higher short-term, long –term and total debt ratios relative to MCs in common law countries (t=15.328; t=1.679; 4.772). Similar results also hold for DCs operating under civil law regime specially for long-term and total debt (t=6.612; t=1.956). Further, DCs operating under classical tax regime appears to hold higher short-term, long-term and total debt ratios than their MCs counterparts (t=9.681; t=5.350; t=3.127). Given univariate tests do not control for any company-specific factors or any external operational exposures, we conduct further formal tests. Therefore, in section 4.6.3 a comprehensive and formal test would be undertaken by incorporating the possible long-term debt ratio determining factors that discussed earlier in this chapter and also Chapter 3.

4.6.3 Regression Analysis and Corresponding Hypothesis

4.6.3.1 DCs' and MCs' Capital Structure Determinants

In order to explain the individual capital structure determinants and their impact on MCs and DCs, the proposed models' regression analysis result is discussed in this section.

Diversification is one of the aspects of any firm becoming larger with an expectation that it would reduce the operational risk. The evidence in Table 4.6 suggests that diversification strategy is not efficiently launched by any of the sample countries. For example, the result of negative and significant diversification (*DIVER*) suggests that Malaysian DCs (t=-1.93) and MCs across Australia (t=-2.17), U.S. (t=-2.98) and Malaysia (t=-2.05) fail to diversify properly, and as a result diversification reduces the ability to increase long-term debt level. These results are consistent with Burgman (1996), Chen et al. (1997), Doukas & Pantzalis (1997) and Lee and Kwok (1988). Our result suggest that as firm expands, the costs of expansion outweighs the benefit which leads to the support of agency cost argument.

While the negative and significant relationship of foreign exchange risk (*FX*) with long-term leverage for DCs is found across Australia (t=-2.93), U.S. (t=-2.73), and Japan (t=-2.40), it is positive and significant for U.K. and Malaysian DCs (t=1.66 and t=2.18). Interestingly, no apparent significant results are found for the MCs across the sample countries. Although the result is a mixed evidence across DCs and MCs, it is consistent with the theory that because DCs' operation is very locally-focused, it is difficult to avoid the exposure for Australian, U.S. and Japanese DCs. Our results are consistent with Adler and Dumas (1984) and Aliber (1983).

The effect of political risk (*PR*) on the long-term debt policy produces mixed results but it significantly affects U.K. MCs (t=4.30). The result suggests as the U.K. MCs' subsidiary countries become safer, it significantly increases the long-term debt capacity, which is consistent with the political risk and capital structure theory (Stonehill and Stilz, 1969; Burgman, 1996)

Significant negative bankruptcy risk (*BPTCY*) for DCs in U.K. and Malaysia suggests that as the volatility of cash flows increase, they significantly reduces the long-term debt capacity. As for MCs, only Malaysian MCs should be aware of increases in bankruptcy risk which is induced by the nature of volatile business operation as it would significantly (t=-3.61) reduce long-term debt capacity. These findings are consistent with the arguments by Friend and Lang (1988), Kraus and Litzenberger (1973), Opler and Titman (1994) and Thies and Klock (1992) that too much long-term debt may cause financial distress due to a lack of periodic debt repayments, which in turn is due to unstable earnings. Further, this also may be due to investors' perception that there is a greater probability of bankruptcy and their observation that the firms' earnings are more volatile - thus they demand higher premium from the firms, which discourages the use of debt in firms.

The firm-specific risk (*BETA*) and debt argument is supported by the negative coefficient with a 1% significance level across U.S. and Japanese DCs (t=-6.00 and t=-3.67). The negative and significant impact of firm-specific risk is also observed in MCs across Australia (t=-2.45), U.S. (t=-4.25), Japan (t=-4.10) and U.K. (t=-3.68). These findings are consistent with the arguments by Burgman (1996), Reeb, Kwok and Baek (1998) and Madura (1998) that as the undiversifiable risk increases, it significantly reduces the long-term debt capacity.

Non-debt tax shield (*NDTS*) does not have an expected sign of negative coefficient for both DCs and MCs for the majority of the sample countries. This suggest that as the tax deduction (tax shields) increase due to increase in non-debt related items (e.g. depreciation, depletion allowances, investment and foreign tax credits), *NDTS* significantly reduces long-term debt. These results are consistent with DeAngelo and Masulis (1980), Mackie Mason (1990) and Graham (1996a).

Average tax rate (*ATR*) coefficient for Australian DCs (t=-2.29) and is consistent with the imputation theory that under an imputation tax system firms are unable to take advantage of interest deduction, and therefore firms prefer to issue less debt and more equity. However, it is interesting to see that U.S. firms employ significantly less debt for both DCs (t=-2.53) and MCs (t=-11.60). A possible explanation is that to receive the full tax benefit of leverage, a firm needs to use 100% debt financing. In our sample, since this situation was not considered in collecting data, it is possible that the *ATR* coefficient is not fully capturing the tax effect. This finding is consistent with Mackie-Mason (1990).

Consistent with the size argument, the (*SIZE*) coefficient in the long-term debt and short-term debt has a highly significant positive coefficient (t=8.35, 7.73, 25.32 3.75 and 14.84) for Australian, U.S., Japanese, U.K. and Malaysian DCs respectively (t=3.53, 9.41, 24.31, 8.16 and 2.01 for the same five countries respectively) suggesting that larger firms tend to be in a better position to hold relatively more debt and therefore are less likely to go bankrupt (Ferri & Jones, 1979; Whited, 1992; Stohs & Mauer, 1996). Importantly it also implies that the larger the firm size, the less the debt-related transaction costs, which therefore enables them to hold more debt.

Collateral value of assets (*CVA*) has a consistently positive sign of coefficient across all sample countries DCs and MCs. Among the five sample countries, *CVA* is found to be a highly significant determinant of capital structure at 1% significance level for all countries' DCs (t=2.20, 5.39, 4.83, 3.60 and 5.54). Similarly, MCs of U.S., Japan, U.K. and Malaysia have highly significant impact on long-term debt level (t=10.85, 7.2, 3.26 and 2.15 respectively). This result suggests that assets that serve as collateral provide an explicit guarantee over debt, which assists firms to borrow on relatively favourable terms at minimal borrowing costs (Rajan & Zingales, 1995; Berger, Ofek and Yermack, 1997; Graham, 2000). This significant positive relationship also suggests that tangible assets acting as collateral for loans can be used to reduce agency costs of long-term debt.

The maturity of a firm indicated by age (*AGE*) is consistent with the theory that as a firm matures and lasts longer in the market it gives positive signals to the lenders, and therefore it significantly increases the borrowing capacity of long-term debt ratios for DCs of Japan (t=4.12) and U.K. (t=3.37) and MCs of U.K. (t=2.37). Interestingly, Australian DCs and U.S.

MCs show that a firm's maturity is significant and negatively related to long-term debt (t=-4.03 and t=-7.38). It may suggest that as firms mature as domestic firms in the Australia, they lose creditworthiness gradually due to lack of satisfactory performance. This result is similar to Petersen and Rajan (1994).

Under pecking order theory, Myers and Majluf (1984) predict that leverage will be negatively related to profitability (*PROF*) because firms prefer to obtain financing through internally-generated funds, with external debt, and finally with equity. The relationship of profitability and long-term debt indicates that pecking order theory holds significantly across all DCs (t=-2.47, -2.42, -9.35 and -3.50) and MCs of U.S. (t=-10.24), Japan (t=-3.63) and U.K. (t= -1.81). This suggest that firms with improved profitability are better able to avoid costly external financing and would rather take the opportunity to use internal financing since these firms have less of a need to access lending from markets, which is usually costly. The sign of the parameter is consistent with Myers (1977), Myers and Majluf (1984), Friend and Lang (1988), Titman and Wessels (1988) Chiarella et al. (1992), Allen (1993) and Wald (1999).

The pecking order theory predicts that firms with stable cash dividend (*DIVC*) policies use leverage to support shortfalls in dividend funding. The support of this theory is found in U.S. for both DCs (t=4.59) and MCs (2.79). However, the DCs and MCs of both Australia (t=-2.62 and t=-2.20) and Malaysia (t=-8.99 and -5.36) and MCs of Japan (t=-1.76) present a negative and significant relationship with long-term debt. This result is inconsistent according to the pecking order theory but consistent with trade-off theory. This negative significant relationship can be interpreted from the agency theory point of view. For example, when a firm has excess cash available in hand, instead of wasting the excess cash in investing low profitable projects they can instead pay dividends and as a result it can put constraints on leverage as there is less availability of cash to finance any project with internally-generated profits. So, dividend payment is negatively related with leverage, suggesting it assists to minimise the agency costs of equity as dividend payment increase. This evidence is found explaining the long-term leverage in DCs in Australia (t=-2.62) and Malaysia (t=-8.99) and MCs across Australia (t=-

2.20), Japan (t=-1.76) and Malaysia (t=-5.36). This results supports the arguments of Easterbrook (1984).

A firm with high level of free cash flow (*FCF*) is less likely to experience agency cost of debt within the firm as *FCF* is expected to reduce agency costs of debt within the firm by enabling the firm to use the firm's extra cash flow for interest payments associated with long-term debt. The *FCF* control variable for agency costs shows a mixed result across DCs and MCs across countries. For example, while Australian DCs have significant and negative coefficient (t=-1.93), Japanese DCs have significant positive coefficients (t=4.66). Similarly, Australian and Malaysian MCs have negative and significant relationships (t=-3.59 and -3.32) while U.S. and Japanese MCs have positive coefficients (t=12.44 and 6.24). The positive and significant coefficients for Japanese DCs and MCs of U.S. and Japan suggest that *FCF* contributes to minimise the agency problem of debt. This is consistent with Gardner and Trinca (1992), Lowe, Naughton and Taylor (1994), Rajan and Zingales (1995), Hirota (1999) and Hall, Hutchinson and Michaelas (2000). Alternatively, Australian DCs and MCs of Australia and Malaysia experiencing negative and significant *FCF* coefficients suggest that managers invest sub-optimally where the return is quite poor, or engage in self-interested behaviour as they hold excess *FCF*, instead of paying excess cash to the shareholders as a dividend to mitigate the agency problem.

The growth variable (*GROW_MB*) captures the future investment position of a firm and its impact on long. While the growth coefficient to explain long-term debt for DCs is supported across Australia (t=-2.60) and U.S. (t=-2.29), this argument is also supported for MCs across Australia (t=-1.84) and Malaysia (t=-1.80). This result is consistent with Jensen and Meckling (1976), Kim and Sorenson (1986), Stulz (1990) and Titman and Wessels (1988) who argue that firms with greater growth should use less debt to avoid under-investment costs related to debt-overhang problems. Further, this negative relationship supports the Myers (1977) pecking order theory which means it is consistent with agency and tax-based theories that predict a negative relationship with long-term debt. On the other hand, there is also significant positive relationship observed for DCs across U.K. (t=3.15) and Malaysia (t=2.28) and this contradicts Myers (1977) growth opportunity hypothesis. Nevertheless, the observed positive coefficient simply implies that growth opportunities add value for the MCs while they expand and grow through borrowing. Further, this increase in growth adds values since the investments attract positive NPV.

Further, short-term debt ratio determinants across countries are investigated and results are presented in Table 4.7. Note that very little research investigates the determinants of short term debt, therefore, our results make very little references in the following discussions.

Table 4.7 shows that diversification (*DIVER*) is an important determining factor for short-term debt across the DCs of Australia (t=2.02), U.S. (t=2.22), Japan (t=1.97), U.K. (t=2.54) and Malaysia (t=1.99). Interestingly, diversification is negatively related to determine Australian MCs short-term debt (t=-4.23) while it is positive and significantly related to determine capital structure for the rest of the sample countries (U.S.: t=1.65, t=3.36, t=1.67 and t=2.04). Although there is no capital structure theory of how diversification should impact on short-term debt, it is important to know that diversification's impact on long-term debt and short-term debt is distinctive. Overall, diversification does assist to increase short-term debt for the majority of both DCs and MCs across countries except for Australian MCs.

Foreign exchange exposure (*FX*) does not appear to be a major concern in raising short-term debt across the majority of the DCs and MCs in the sample countries except for U.S. (t=1.95) and Japanese (t=-2.17) DCs and Malaysian MCs (t=-2.15). It shows that foreign exchange exposures significantly reduce the capacity to raise short-term debt for Japanese DCs and Malaysian MCs.

Table 4.6

Capital structure (long-term debt) determinants across 5 sampled countries

This table reports the variables and expected signs of the hypotheses. There is one dependent variable and fifteen independent variables. The following model is utilized:

$$Leverage\,(L)_{(i,t)} = \beta_0 + \sum \beta_1 X_{International\_factors(i,t)} + \sum \beta_2 X_{Tradeoff\_factors(i,t)} + \sum \beta_3 X_{Firm\_peckingorder(i,t)} + e_{(i,t)}$$

The dependent variable *LEVERAGE* is measured as long-term debt to long-term debt and market value of assets which is indicated by $LTD\_MV_{i,t}$. The variables are measured in the following manner: The independent variables are measured in the following manner: $DIVER_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. $FX_{i,t}$ – *foreign exchange risk* is measured as a ratio of foreign sales to total sales. $PR_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. $BPTCY_{i,t}$ – *bankruptcy risk* is measured as the standard deviation of last five years earrings volatility of firm's earnings before interest and taxes. $BETA_{i,t}$ – *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index – market model. *NDTS* (Non-Debt Tax Shield) is calculated by total annual depreciation expense over total assets. $ATX_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. $SIZE_{i,t}$ – *size* variable is measured as natural logarithm of total assets. $CVA_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. $AGE_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until 2004. $PROF_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. $DIVC_{i,t}$ – *dividend payout ratios* is a ratio of cash dividend paid to net income (note losses made in any year have been deleted from sample). $AGC_{i,t}$ is defined as is the natural logarithm of total shareholders. $FCF_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. $GROW\_MB_{i,t}$ – *growth* is the market value of equity over total assets. a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

$LTD\_MV_{i,t}$	AU - DCs		US - DCs		JP - DCs		GB - DCs		MY - DCs		AU - MCs		US - MCs		JP - MCs		GB - MCs		MY – MCs	
Variable	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.11	-0.57	0.30	1.33	-0.77	**-3.67**[a]	-0.23	-0.90	-0.03	-0.27	-0.67	**-2.28**[a]	-0.29	-1.50	-0.80	**-4.60**[a]	-0.81	**-4.98**[a]	-0.11	-0.38
$DIVER_{i,t}$	0.01	0.94	0.00	0.19	-0.01	-1.42	-0.01	-0.52	-0.03	**-1.93**[b]	-0.03	**-2.17**[a]	-0.02	**-2.98**[a]	0.00	0.06	-0.02	-1.49	-0.03	**-2.05**[a]
$FX_{i,t}$	-0.12	**-2.93**[a]	-0.11	**-2.73**[a]	-0.22	**-2.40**[a]	0.08	**1.66**[c]	0.08	**2.18**[a]	-0.03	-0.61	-0.03	-1.10	0.01	0.29	0.00	0.09	0.03	0.46
$PR_{i,t}$	0.00	0.73	0.00	-1.28	0.00	-1.51	0.00	0.15	0.00	-1.36	0.01	1.62	0.00	0.20	0.00	1.19	0.01	**4.30**[a]	0.00	1.19
$BPTCY_{i,t}$	0.00	0.46	0.00	0.77	0.00	**3.32**[a]	0.00	**-3.60**[a]	0.00	**-2.09**[a]	0.00	-0.81	0.00	-1.06	0.00	-0.53	0.00	-1.57	-0.02	**-3.61**[a]
$BETA_{i,t}$	-0.14	-1.12	-0.38	**-6.00**[a]	-0.30	**-3.67**[a]	-0.23	-1.64	-0.16	-1.54	-0.37	**-2.45**[a]	-0.18	**-4.25**[a]	-0.24	**-4.10**[a]	-0.34	**-3.68**[a]	0.42	**1.72**[b]
$ATR_{i,t}$	-0.53	**-2.29**[a]	-1.04	**-2.53**[a]	0.38	**1.70**[b]	-0.64	**-2.90**[a]	-0.60	-1.56	-0.22	-0.57	-3.50	**-11.60**[a]	-1.78	**-4.32**[a]	-0.01	-0.09	-2.91	**-3.57**[a]
$NDTS_{i,t}$	0.00	**2.65**[a]	0.00	0.60	0.01	**2.41**[a]	0.00	-0.61	0.00	1.23	0.00	-0.22	0.00	**9.05**[a]	0.00	0.11	0.00	**-1.65**[a]	0.02	**2.30**[a]
$SIZE_{i,t}$	0.07	**8.35**[a]	0.06	**7.73**[a]	0.10	**25.32**[a]	0.04	**3.75**[a]	0.09	**14.83**[a]	0.06	**3.53**[a]	0.07	**9.41**[a]	0.09	**24.31**[a]	0.07	**8.16**[a]	0.03	**2.01**[a]
$CVA_{i,t}$	0.11	**2.20**[a]	0.26	**5.39**[a]	0.20	**4.83**[a]	0.23	**3.60**[a]	0.19	**5.54**[a]	-0.04	-0.50	0.44	**10.85**[a]	0.48	**7.20**[a]	0.14	**3.26**[a]	0.21	**2.15**[a]
$AGE_{i,t}$	-0.06	**-4.03**[a]	-0.01	-1.42	0.08	**4.12**[a]	0.05	**3.37**[a]	-0.01	-0.94	0.02	0.63	-0.06	**-7.38**[a]	0.02	0.94	0.02	**2.37**[a]	0.04	1.37
$PROF_{i,t}$	-0.06	**-2.47**[a]	-0.30	**-2.42**[a]	-3.01	**-9.35**[a]	-0.06	-1.47	-0.36	**-3.50**[a]	-0.04	-0.45	-1.34	**-10.24**[a]	-1.30	**-3.63**[a]	-0.07	**-1.81**[b]	-0.32	-0.88
$DIVC_{i,t}$	-0.09	**-2.62**[a]	0.17	**4.59**[a]	-0.02	-0.63	-0.07	-1.44	-0.26	**-8.99**[a]	-0.13	**-2.20**[a]	0.07	**2.79**[a]	-0.05	**-1.76**[b]	0.01	0.43	-0.45	**-5.36**[a]
$FCF_{i,t}$	-0.04	**-1.93**[b]	0.00	1.53	0.65	**4.66**[a]	-0.02	-1.35	0.01	1.19	-0.18	**-3.59**[a]	0.00	**12.44**[a]	0.01	**6.24**[a]	-0.01	-0.72	-0.23	**-3.32**[a]
$GROW\_MB_{i,t}$	-0.01	**-2.60**[a]	0.00	**-2.29**[a]	0.00	-0.42	0.00	**3.15**[a]	0.00	**2.28**[a]	0.00	**-1.84**[b]	0.00	0.75	0.00	**3.61**[a]	0.00	0.31	-0.02	**-1.80**[b]
No. of Obs	994		1371		1093		719		1861		1254		1417		814		1469		964	
Adj R-sqr	0.334		0.254		0.528		0.208		0.185		0.433		0.350		0.540		0.237		0.411	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

The impact of political risk (PR) for the short-term debt, it shows that MCs and DCs in Japan has a significant negative impact (DCs: t=-3.52 and MCs: t=-3.09). A possible explanation for this is that usually both DCs and MCs are insured against political risk and, obviously on a short term period, if a country's political environment becomes safer it does not necessarily mean the firm can recover the insurance costs.

Bankruptcy risk *(BPTCY)* on short-term debt appears more prominent across the DCs of Australia (t=-2.66), U.K. (t=-5.80), Malaysia (t=-2.67) and MCs of Australia, U.S., U.K. and Malaysia (t=-3.63; -1.78, -1.76 and -5.80) respectively.

The impact of firm risk (*BETA*) control the short-term debt more notably for Australian (t=-2.54) and U.S. (t=-2.69) DCs and U.S. (t=-6.23) and U.K. (t=-5.060) MCs. In these countries, as the firm-specific risk increases it disables the capacity to take short-term debt in firms' capital structure.

The average tax rate (*ATR*) implication is negative and significant in explaining capital structure for DCs in U.S. (t=-2.03) and Malaysia (t=-2.78) and MCs in Japan (t=-6.81) and Malaysia (t=-3.24). Australia's average tax rate has a positive effect on short-term debt which increases the benefit of raising debt in a short periods. This may suggest that imputation tax have little effect on short-term debt.

Non-debt tax shields (*NDTS*) have positive impact on short-term debt for DCs in U.S. (t=2.74) and MCs in Japan (t=2.22). However, a negative significant impact of NDTS is also observed for MCs in U.S. (t=-8.35).

The size variable in the regressions have highly significant positive coefficients for MCs across U.S. (t=4.69) and U.K. (t=3.36). This suggests that the greater the firm size the higher the leverage and this supports Cook (1991) and Smith (1977). A negative and significant size effect is observed for DCs in U.K. (t=-5.46) and Malaysia (t=-6.34).

The significant positive coefficient on the collateral value of assets variable (*CVA*) for firms in general is found only for MCs in Japan (t=5.87) which supports the idea that higher collateral value of assets increases the debt capacity. However, majority of the DCs and MCs across sample countries show that CVA has a significant negative impact on short-term debt ratios.

Maturity of firms (*AGE*) is found to be a significant factor for all sample countries MCs (t=2.25, t=7.00, t=2.03 and t=2.57) except for Malaysia. *AGE* variable generally has, highly positive statistical power to explain short-term debt.

The pecking order theory of Myers (1977) predicts that leverage will be negatively related to profitability. The results provide strong support for this with negative and highly significant coefficient on the profitability variable (*PROF*) for DCs in U.S. (t=-1.88), Japan (t=-6.02), U.K. (t=-1.84) and Malaysia (t=-8.48) and MCs in Japan (t=-4.47).

Proponents of the pecking order theory believe that firms with generous dividend policies use leverage to subsidise shortfalls in dividend funding in short term and therefore a positive relationship would be expected. The evidence of this is supported for DCs (t=6.04) and MCs in U.S. (t=6.93). On the other hand, a negative relationship would suggests that the short-term debt is too costly to subsidise shortfalls in dividends in the short term period, and the results for consistently significant negative coefficients in Table 4.7 suggest this argument across DCs in Japan (t=-5.18) and Malaysia (t=-3.31) and MCs in Japan (t=-4.85) and U.K. (t=1.81).

The agency costs of free cash flow (*FCF*) has expected negative sign for DCs in U.S. (t=-12.92). It is also found that the agency problem of free cash flow is not prominent in other sample countries.

Growth (*GROW_MB*) variable is negative and consistent with the theory that, when firms are in their short term growth stage and if the growth (e.g. expansion or major project investments) is financed through external debt may result a negative impact on debt level, especially when net present value of new projects are negative. The statistical support of this theory is found for DCs in Australia and U.S. (t=-2.32, t=-6.19) and MCs in Japan (t=-3.51).

Overall, the determinants for short-term debt for DCs and MCs across sample country suggest that there is a similarity of factors that explain long-term debt and short-term debt.

4.6.3.2 Multinationality Hypothesis

In order to test whether multinationality has a significant influence on capital structure (both long-term and short term debt) determination, Model II is used (results presented in Table 4.8) . An additional variable for MCs is included to capture the multinationality effect on debt level for both short-term debt and long-term debt. In this model, the entire samples of DCs and MCs have been pooled while the common fifteen variables are kept consistent. Although for the interpretation purpose Model I is used earlier to investigate separately the impact of each explanatory variable on DCs' and MCs' capital structure thoroughly, it does not reveal any information about the impact of multinationality of a firm on long-term and short-term debt ratio after controlling for relevant theories. A Wald test is conducted to examine whether a pool sample can be used to put the DCs and MCs sample together from this point of our subsequent analysis. For the combined data set of DCs and MCs, the chi square test statistics take a value of 3.83 for 14 degrees of freedom, which translates into p-value of 0.120. This value suggests that parameters homogeneity failed to reject at a statistical level well beyond any conventional level.

Table 4.7
Capital structure (short-term debt) determinants across 5 sampled countries

This table reports the variables and expected signs of the hypotheses. There is one dependent variable and fifteen independent variables. The following model is utilised:

$$SLeverage\,(L)_{(i,t)} = \beta_0 + \sum \beta_1 X_{International\_factors(i,t)} + \sum \beta_2 X_{Tradeoff\_factors(i,t)} + \sum \beta_3 X_{Firm\_peckingorder(i,t)} + e_{(i,t)}$$

The dependent variable (*SLEVERAGE* $_{i,t}$) is measured as book value of short-term debt divided by book value of total assets. The independent variables are measured in the following manner: The independent variables are measured in the following manner: *DIVER* $_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. *FX* $_{i,t}$ *– foreign exchange risk* is measured as a ratio of foreign sales to total sales. *PR* $_{i,t}$ *– political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. *BPTCY* $_{i,t}$ *–bankruptcy risk* is measured as the standard deviation of last five years earrings volatility of firm's earnings before interest and taxes. *BETA* $_{i,t}$ *– firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index – market model. *NDTS* $_{i,t}$ (Non-debt Tax Shield) is calculated by total annual depreciation expense over total assets. *ATX* $_{i,t}$ *– average tax* is calculated as a ratio of tax expense to total income. *SIZE* $_{i,t}$ *– size* variable is measured as natural logarithm of total assets. *CVA* $_{i,t}$ *– collateral value of assets* is measured as the ratio of total fixed assets to total assets. *AGE* $_{i,t}$ *– age* is defined as the natural logarithm of the number of years since it has been incorporated until 2004. *PROF* $_{i,t}$ *– profitability* is defined as the average ratio of net income over total sales. *DIVC* $_{i,t}$ *– dividend payout ratios* is a ratio of cash dividend paid to net income (note losses made any year has been deleted from sample). AGC $_{i,t}$ is defines as is the natural logarithm of total shareholders. *FCF* $_{i,t}$ *– free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. *GROW* $_{i,t}$ *– growth* is the market value of equity over total assets. a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

STD_BV $_{i,t}$	AU - DCs		US - DCs		JP - DCs		GB – DCs		MY - DCs		AU - MCs		US - MCs		JP - MCs		GB - MCs		MY - MCs	
Variables	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	0.05	1.07	-0.01	-0.19	0.09	1.19	0.06	0.79	0.23	**4.94**[a]	0.09	1.49	-0.06	-1.55	0.28	**4.00**[a]	0.05	1.59	0.19	**1.84**[a]
DIVER $_{i,t}$	0.01	**2.02**[a]	0.00	**2.22**[a]	0.01	**1.97**[a]	0.01	**2.54**[a]	0.01	**1.99**[a]	-0.01	**-4.23**[a]	0.00	**1.65**[a]	0.01	**3.36**[a]	0.00	**1.67**[a]	0.01	**2.04**[a]
FX $_{i,t}$	0.01	1.00	0.01	**1.95**[a]	-0.08	**-2.71**[a]	-0.01	-0.48	-0.02	-1.24	0.00	0.18	0.00	0.92	0.01	0.88	-0.01	-1.28	-0.04	**-2.15**[a]
PR $_{i,t}$	0.00	-0.20	0.00	1.47	0.00	**-3.52**[a]	0.00	0.79	0.00	0.40	0.00	-0.71	0.00	0.10	0.00	**-3.09**[a]	0.00	-0.94	0.00	1.45
BPTCY $_{i,t}$	0.00	**-2.66**[a]	0.00	**6.38**[a]	0.00	0.06	0.00	**-5.80**[a]	0.00	**-2.67**[a]	0.00	**-3.63**[a]	0.00	**-1.78**[a]	0.00	-0.51	0.00	**-1.76**[a]	-0.01	**-5.80**[a]
BETA $_{i,t}$	-0.09	**-2.54**[a]	-0.03	**-2.69**[a]	0.02	0.57	-0.03	-0.97	-0.02	-0.48	-0.04	-1.12	-0.05	**-6.23**[a]	0.00	0.03	-0.07	**-5.06**[a]	0.09	1.19
ATR $_{i,t}$	0.15	**1.65**[a]	-0.13	**-2.03**[a]	0.61	**2.79**[a]	-0.06	-0.51	-0.33	**-2.78**[a]	0.22	0.66	0.08	1.47	-1.09	**-6.81**[a]	0.00	-0.01	-0.67	**-3.24**[a]
NDTS $_{i,t}$	0.00	0.95	0.00	**2.74**[a]	0.00	0.35	0.00	0.76	0.00	0.54	0.00	0.20	0.00	**-8.35**[a]	0.00	**2.22**[a]	0.00	-0.58	0.00	-0.65
SIZE $_{i,t}$	0.00	0.22	0.00	0.86	0.00	-0.05	-0.01	**-5.46**[a]	-0.01	**-6.34**[a]	0.00	-0.50	0.01	**4.69**[a]	0.00	-1.45	0.00	**3.36**[a]	-0.02	**-3.28**[a]
CVA $_{i,t}$	-0.02	**-2.13**[a]	-0.04	**-4.85**[a]	-0.01	-0.63	0.02	1.51	-0.03	**-2.18**[a]	-0.01	-0.59	-0.04	**-5.62**[a]	0.15	**5.87**[a]	0.01	1.38	-0.10	**-3.13**[a]
AGE $_{i,t}$	0.00	1.34	-0.01	**-2.60**[a]	0.07	**8.91**[a]	0.00	0.31	-0.01	-1.62	0.01	**2.25**[a]	0.01	**7.00**[a]	0.02	**2.03**[a]	0.00	**2.57**[a]	-0.01	-1.25
PROF $_{i,t}$	0.00	0.27	-0.02	**-1.88**[a]	-0.91	**-6.02**[a]	-0.06	**-1.84**[a]	-0.27	**-8.48**[a]	0.02	1.03	0.05	**2.42**[a]	-0.58	**-4.47**[a]	0.00	-0.63	-0.18	-1.47
DIV $_{i,t}$	-0.01	-0.60	0.03	**6.04**[a]	-0.05	**-5.18**[a]	-0.02	-1.38	-0.04	**-3.31**[a]	0.00	0.29	0.03	**6.93**[a]	-0.04	**-4.85**[a]	-0.01	**-1.81**[a]	-0.03	-1.54
FCF $_{i,t}$	-0.01	-1.64	0.00	-1.24	-0.01	-0.46	0.00	**2.57**[a]	0.00	-1.25	-0.01	-1.15	0.00	**-12.92**[a]	0.00	0.79	0.00	1.27	-0.01	-0.33
GROW_MB $_{i,t}$	0.00	**-2.32**[a]	0.00	**-6.19**[a]	0.00	-1.55	0.00	**6.23**[a]	0.00	1.55	0.00	**3.16**[a]	0.00	**2.42**[a]	0.00	**-3.51**[a]	0.00	1.62	0.01	**1.91**[a]
No. of Obs	994		1371		1093		719		1861		1254		1417		814		1469		964	
Adj R-sqr	0.046		0.076		0.181		0.112		0.194		0.063		0.139		0.186		0.021		0.289	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

The result in Table 4.8 (Panel A) suggests that the effect of the multinationality coefficient has a mixed level of significance and direction across countries for long-term leverage. For example, for Australia, Japan, Great Britain and Malaysia the coefficient is positive. However, from a statistical point of view it is only significant for U.S. (t=-5.14) and Malaysia (t=2.41). The direction of negative significance level for U.S. and positive significance level for Malaysia supports the international costs of capital theory that multinational corporations that originated in developing countries but have subsidiaries in developing countries will have higher debt, and multinationals in developed countries having subsidiaries in relatively lower developed countries will have lower debt ratio (Shapiro, 1996). This is because it is easier and cheaper to raise debt in established countries where transaction cost is low, there is less chance of bankruptcy as established economies assists to have smooth earnings, and cost are lower to raise long-term debt due to easier access to long-term debt. On the other hand, when I investigated the effect of multinationality on short-term debt (Panel B), it appears that the relationship of

Table 4.8
Testing of multinationality effect on long-term and short-term debt across 5 sampled countries

This table reports the variables and expected signs of the hypotheses. There two dependent variables and fifteen independent variables. The following model is utilised:

$$Leverage\,(L)_{(it)} = \beta_0 + \beta_1\ MULT_{i,t} + \sum \beta_2 X_{International\_factors(i,t)} + \sum \beta_3 X_{Tradeoff\_factors(i,t)} + \sum \beta_4 X_{Firm\_peckingorder(i,t)} + e_{(it)}$$

There are two dependent variables (*LEVERAGE* $_{i,t}$) takes the following four forms: *LTD_MV* $_{i,t}$, and *STD_BV* $_{i,t}$ which are measured as book value of long-term debt divided by sum of book value of long-term debt and market value of equity; and book value of short-term debt divided by book value of total assets. Sixteen independent variables are measured as: *MULT* $_{i,t}$ – *multinationality* takes a value of 1 (unity) if the corporation is multinational corporations otherwise it is 0 (domestic corporations). The variables are measured in the following manner: The independent variables are measured in the following manner: *DIVER* $_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. *FX* $_{i,t}$ – *foreign exchange risk* is measured as a ratio of foreign sales to total sales. *PR* $_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. *BPTCY* $_{i,t}$ –*bankruptcy risk* is measured as the standard deviation of last five years earrings volatility of firm's earnings before interest and taxes. *BETA* $_{i,t}$ – *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index – market model. *NDTS* $_{i,t}$ (Non-debt Tax Shield) is calculated by total annual depreciation expense over total assets. *ATX* $_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. *SIZE* $_{i,t}$ – *size* variable is measured as natural logarithm of total assets. *CVA* $_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. *AGE* $_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until 2004. *PROF* $_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. *DIVC* $_{i,t}$ – *dividend payout ratios* is a ratio of cash dividend paid to net income (note losses made any year has been deleted from sample). AGC $_{i,t}$ is defines as is the natural logarithm of total shareholders. *FCF* $_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. *GROW* $_{i,t}$ – *growth* is the market value of equity over total assets. a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

Panel A	AU		US		JP		GB		MY		ALL	
LTD_MV	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	-0.25	-1.57	0.05	0.36	-0.86	**-6.35** [a]	-0.65	**-5.01** [a]	-0.06	-0.53	0.12	**2.31** [a]
MULT i,t	0.04	1.58	-0.08	**-5.14** [a]	0.03	1.59	0.02	1.21	0.06	**2.41** [a]	-0.06	**-6.07** [a]
DIVER i,t	-0.01	-1.34	-0.02	**-3.02** [a]	0.00	-1.08	-0.01	-1.56	-0.03	**-2.58** [a]	0.00	**1.77** [a]
FX i,t	-0.09	**-3.10** [a]	-0.06	**-2.48** [a]	-0.02	-0.80	0.01	0.42	0.07	**2.04** [a]	0.02	1.37

PR i,t	0.00	1.36	0.00	-0.41	0.00	-0.28	0.01	3.57[a]	0.00	-0.84	0.00	-2.60[a]
BPTCY i,t	0.00	0.92	0.00	-0.44	0.00	1.40	0.00	-3.70[a]	0.00	-1.69	0.00	3.12[a]
BETA i,t	-0.20	-2.22[a]	-0.26	-7.44[a]	-0.29	-6.09[a]	-0.29	-3.91[a]	-0.11	-1.09	-0.16	-6.41[a]
ATR i,t	-0.28	-1.11	-2.80	-8.79[a]	-0.37	-1.87[a]	-0.13	-1.62	-0.85	-2.35[a]	-0.79	-6.08[a]
NDTS i,t	0.00	2.41[a]	0.00	10.02[a]	0.01	2.08[a]	0.00	-1.62	0.00	1.33	0.00	3.30[a]
SIZE i,t	0.07	9.72[a]	0.06	11.80[a]	0.09	35.08[a]	0.06	9.13[a]	0.09	15.12[a]	0.06	37.32[a]
CVA i,t	0.03	0.68	0.39	11.60[a]	0.28	8.17[a]	0.16	4.68[a]	0.18	5.49[a]	0.28	16.72[a]
AGE i,t	-0.03	-2.83[a]	-0.04	-6.97[a]	0.07	5.10[a]	0.03	4.01[a]	0.00	-0.32	-0.05	-12.06[a]
PROF i,t	-0.05	-1.76[a]	-0.68	-3.65[a]	-1.77	-6.21[a]	-0.07	-2.39[a]	-0.40	-3.68[a]	-0.25	-7.12[a]
DIVC i,t	-0.09	-3.21[a]	0.09	4.35[a]	-0.06	-2.73[a]	-0.01	-0.32	-0.29	-10.17[a]	-0.03	-2.73[a]
FCF i,t	-0.05	-2.36[a]	0.00	8.44[a]	0.02	4.83[a]	-0.01	-1.51	0.01	1.14	0.00	8.37[a]
GROW_MB i,t	-0.01	-3.60[a]	0.00	-1.50	0.00	2.41[a]	0.00	2.93[a]	0.00	1.18	0.00	-6.05[a]
No. of Obs	2248		2788		1907		2188		2825		11956	
Adj R-sqr	0.31		0.30		0.52		0.22		0.19		0.24	

Panel B	**AU**		**US**		**JP**		**GB**		**MY**		**ALL**	
STD_BV	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	0.02	0.31	-0.01	-0.20	0.28	4.25[a]	0.01	0.17	0.27	5.16[a]	0.30	14.13[a]
MULT i,t	0.02	1.05	-0.01	-2.26[b]	0.01	1.84[b]	0.00	-0.56	0.00	0.44	0.02	4.79[a]
DIVER i,t	0.00	-1.02	0.00	2.53[b]	0.00	2.00[b]	0.01	3.05[a]	0.01	3.11[a]	0.00	1.37
FX i,t	-0.01	-0.88	0.01	2.15[b]	-0.04	-2.97[a]	0.01	0.82	0.01	0.65	-0.03	-5.51[a]
PR i,t	0.00	-0.26	0.00	1.16	0.00	-4.19[a]	0.00	0.83	0.00	-0.12	0.00	-10.03[a]
BPTCY i,t	0.00	-1.78[b]	0.00	3.33[a]	0.00	0.05	0.00	-5.34[a]	0.00	-2.56[b]	0.00	-3.53[a]
BETA i,t	0.01	0.21	-0.06	-7.30[a]	-0.01	-0.62	-0.06	-2.14[b]	0.02	0.37	-0.09	-11.28[a]
ATR i,t	0.30	1.20	-0.09	-1.96[b]	0.44	2.05[b]	-0.11	-1.99[b]	-0.13	-0.61	-0.18	-3.00[a]
NDTS i,t	0.00	1.26	0.00	25.17[a]	0.00	2.68[b]	0.00	0.86	0.00	2.07[b]	0.00	5.58[a]
SIZE i,t	0.01	2.21[b]	0.01	5.22[a]	0.00	-1.12	0.00	-0.90	-0.01	-4.64[a]	0.00	8.43[a]
CVA i,t	-0.03	-1.88[b]	-0.04	-6.97[a]	0.05	2.59[b]	0.02	1.92[b]	-0.02	-1.23	0.02	2.73[a]
AGE i,t	0.01	1.44	0.01	4.35[a]	0.03	5.20[a]	0.00	1.38	0.00	-0.34	0.02	11.68[a]
PROF i,t	0.01	0.38	-0.02	-1.87[b]	-0.88	-7.25[a]	-0.02	-1.04	-0.31	-6.51[a]	-0.11	-4.84[a]
DIVC i,t	-0.02	-1.68[c]	0.03	7.94[a]	-0.06	-6.05[a]	0.00	-0.39	-0.08	-6.82[a]	-0.03	-7.79[a]
FCF i,t	0.00	-0.24	0.00	-7.71[a]	0.00	0.68	0.00	-1.05	-0.01	-2.39[b]	0.00	-2.97[a]
GROW_MB i,t	0.00	-0.69	0.00	-3.21[a]	0.00	-2.96[a]	0.00	5.71[a]	0.00	1.57	0.00	2.88[a]
No. of Obs	2248		2788		1907		2188		2825		11956	
Adj R-sqr	0.04		0.10		0.19		0.05		0.22		0.17	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

multinationality with short-term debt stays similar to long-term debt (e.g. positive) for Australia, U.S., Japan and Malaysia but not for U.K. (e.g. negative and insignificant). Although, the direction is found to be consistent for both long-term and short-term debt, it is only significant across U.S. (t=-2.26) and Japan (t=1.84). Further, Table 4.8 (Panel B) shows that while U.S. MCs have significantly lower (t=-2.26) short-term debt than their DCs in their capital structure, U.K. on the other hand has lower short-term debt ratio as well but the relationship is not statistically significant. Disregarding country differences, results shows that MCs has significantly (t=4.79) higher short-term debt while MCs has significantly (t=-6.07) lower long-term debt ratio in their capital structure compared to DCs. MCs holding significantly less long-term debt ratio than their domestic counterparts is consistent with Lee (1986), Fatemi (1988) and Lee and Kwok (1988).

4.6.3.3 Do the Capital Structure Determinants Vary?

The theoretical studies based on international environmental factors predict that MCs will have lower debt ratios than DCs (Burgman, 1996; Shapiro, 1978). As noted earlier, the major determinants of a firm's debt ratio include firm-specific factors. Each of those factors therefore, will be tested to investigate whether there is a significant difference between DCs' and MCs' firm-specific factors that may contribute to the difference in their debt ratios in addition to the MCs' international factors (e.g. diversification, foreign exchange risk and political risk). Model III attempts to differentiate the significant difference between DCs' and MCs' debt levels (Table 4.9). The adjusted R^2 shows that the model provides a reasonable explanation, as the values range between 22% (U.K.) and 36% (Australia).

The common determinants of the coefficients' significance level and sign remain relatively unchanged across countries. Since the aim of this model is to identify the significant slope differences, the original coefficients and their significance will not be discussed. This is to avoid repetition since similar results were discussed earlier.

The significant diversification (*M_DIVER*) of MCs' interaction slope for Australia (t=-2.27) and U.S. (t=-2.02) suggests that increases in geographical diversification significantly reduces MCs' long-term debt holding capacity then their DC counterparts. This appears more prominent in Australian MCs and U.S. MCs. It can be argued that the cause of this is due to MCs being originated in developed countries and therefore, as their expansion increases to developing or underdeveloped countries, it diminishes the benefit of diversification (Shapiro, 1996).

The interaction variable of foreign exchange (*M_FX*) exposure for Japanese MCs is significantly different than DCs (t=2.37). This significant and positive difference of foreign exchange exposure for Japanese MCs suggests that the Japanese MCs have better management of international risks on their assets and liabilities and, as a result, Japanese MCs benefit from such exposure.

The interaction of political risk (*M_PR*) exposure is significantly different for MCs across Japan (t=1.92); U.K. (t=2.15) and Malaysia (t=1.65). This positive and significant interaction of political risk slope difference explains that the MCs across Japan, U.K. and Malaysia are well aware of the volatile political environment of their subsidiaries' locations and they are well protected from any volatile political movements through insurance policy (Shapiro, 1996). Therefore, if the political environment of the MCs in those countries becomes safer, then it would significantly increase their long-term debt.

The significant and negative interaction variable of firm risks (*M_BPTCY*) across Japan (t=-3.34) and Malaysia (t=-3.57) suggests that the cash flow volatility between DCs and MCs varies significantly in those two countries and the impact of this relationship has negative effect on long-term leverage. This evidence also states that bankruptcy of MCs across these two countries are significantly different compared to DCs and this minimises the capacity to hold onto long-term debt in the MCs' capital structure.

The slope difference of firm risk (*M_BETA*) coefficient of MCs is significantly different from DCs across U.S. (t=2.61) and Malaysia (t=2.21), and the implication of this result on MCs capital structure at least for those two countries is positive. This means that as the firm risk increases, MCs can manage it better and can take advantage of it as they have access to multiple countries operational environment relative to DCs, and consequently it assists them to have higher debt than DCs.

The significant difference of average tax slope (*M_ATR*) coefficient across U.S. (t=-4.85), Japan (t=-4.60), U.K. (t=2.64) and Malaysia (t=-2.61) suggests that as there is an increase of average marginal tax rate, it decreases MCs debt-holding capacity more than the DCs. This also implies that MCs that originated in those countries in my sample are not quite capable of internalising the tax advantage of multiple countries' tax regimes especially where their subsidiaries are located.

The significant interaction of non-debt tax shield (*M_NDTS*) variable for MCs across Japan (t=-1.85) and Malaysia (t=2.26) suggests that the Malaysian MCs have better ability to shelter their income from taxation than their DCs counterparts. However, Japanese MCs do not experience the same benefit as Malaysian MCs, instead, as far as tax shield goes Japanese MCs suffer from any increase in non-debt tax related items.

While the significant interaction of size (*M_SIZE*) variable across Japanese (t=-2.27) and Malaysian (t=-4.22) MCs appears to have significantly different and negative relationship with long-term debt relative to DCs, U.K. MCs on the other hand appear to have a significantly different positive relationship with debt compared to DCs. This result suggest that while U.K. multinationals' size significantly enables them to have higher debt ratios relative to their DCs, size for Japanese and Malaysian MCs have significantly negative impact and as a result it prevents their MCs holding higher debt ratio than DCs. Further, the significant difference of MCs' collateral value of assets (*M_CVA*) supports the idea that as the fixed assets of MCs increases, it significantly increases the long-term debt holding capacity for MCs than DCs.

The results of the interaction of MCs' age variable (*M_AGE*) suggests that when a firm matures, it significantly reduces U.S. (t=-3.28) and Japanese (t=-2.37) MCs' debt ratio. On the contrary, a positive significant interaction of age coefficient of age variable suggests it significantly increase (t=2.30) Australian MCs debt ratios.

The interaction profitability (*M_PROF*) variable for MCs is found to be significantly different from their DCs counterparts across U.S. (t=-5.73) and Japan (t=3.54). This evidence suggest that pecking order theory plays a vital role in explaining MCs' capital structure than DCs in U.S., while trade-off theory of profitability plays an important role in explaining Japanese debt ratio.

Dividend payments (*M_DIVC*) MCs' interaction variable is negative and significant across U.S. (t=-2.19) and Malaysia (t=-2.12). This result indicates that as dividend payment increases, it significantly reduces the long-term debt ratio relative to DCs in U.S. and Malaysia.

MCs' interaction of free cash flow (*M_FCF*) is found significant across Australia (t=-2.67), Japan (t=-4.58) and Malaysia (t=-3.44). This suggests that as the excess free cash flow increases, it results in a significant decrease in the MCs' capital structure relative to DCs.

The results for the interaction variable support MCs having a significantly different growth opportunities relationship with debt level relative to DCs across Australia (t=1.87), Japan (t=2.73) and Malaysia (t=-2.06). The negative significant difference of growth impact on leverage reveals several features about MCs in Malaysia, as a relatively large proportion of their intangible assets cannot support a high leverage ratio. Further, a firm with greater growth opportunities might have a lower debt ratio due to fear that debt holders might pass up valuable investment opportunities. This is also related to the under-investment problem which seems to be intensified when firms are in financial distress. Positive significant coefficient, on the other hand, implies that the growth opportunities require more long-term debt to take advantage of any long-term investment opportunities.

Table 4.9
Interaction effect to identify the difference of capital structure determinants across 5 sampled countries DCs and MCs

This table reports the variables and expected signs of the capital structure determinants. The dependent variable *LEVERAGE* $(L)_{(it)}$ is measured as long-term debt to long-term debt and market value of assets which is indicated by $LTD\_MV_{i,t}$. Sixteen independent variables are measured as: $MULT_{i,t}$ – *multinationality* takes a value of 1 (unity) if the corporation is multinational corporations otherwise it is 0 (domestic corporations). $DIVER_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. $FX_{i,t}$ – *foreign exchange risk* is measured as a regression coefficient of trade-weighted index and this is obtained by regressing individual firms return against market index and trade-weighted index on a yearly basis using weekly frequency data. FX^2 – *multinationality concavity* is measured as square of foreign sales to total sales. $PR_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. $BPTCY_{i,t}$ - *bankruptcy risk* is measured as the standard deviation of last five years earnings volatility of firm's earnings before interest and taxes. $BETA_{i,t}$ – *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index. $ATX_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. $NDTS_{i,t}$ – *non-debt tax shield* is calculated as depreciation expense to total assets. $SIZE_{i,t}$ – *size* variable is measured as natural logarithm of total assets. $CVA_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. $AGE_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until 2004. $PROF_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. $DIVC_{i,t}$ – *dividend payment* is a ratio of cash dividend paid to net income (note losses made any year has been deleted from sample). $FCF_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. $GROW_{i,t}$ – *growth* is the market value of equity over total assets. The interaction dummy variable is used to find the significant difference of the common variables. For example, M_FX takes the actual value of MCs while it is 0 for the DCs.

$$Leverage\,(L)_{(it)}=\beta_0+\beta_1\,MULT_{i,t}+\sum\beta_2X_{International\_factors(i,t)}+\sum\beta_3X_{Tradeoff\_factors(i,t)}$$
$$+\sum\beta_4X_{Firm\_peckingorder(i,t)}+MULT_{i,t}*\sum\beta_5X_{International\_factors(i,t)}$$
$$+MULT_{i,t}*\sum\beta_6X_{Tradeoff\_factors(i,t)}+MULT_{i,t}*\sum\beta_7X_{Firm\_peckingorder(i,t)}+e_{(it)}$$

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

$LTD\_MV_{i,t}$	AU		US		JP		GB		MY		ALL	
Variable	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.11	-0.56	0.30	1.33	-0.77	**-3.67**[a]	-0.23	-0.91	-0.03	-0.27	0.25	**4.00**[a]
$MULT_{i,t}$	-0.56	-1.62	-0.59	**-1.99**[b]	-0.03	-0.13	-0.59	**-1.95**[b]	-0.07	-0.24	-0.31	**-2.71**[a]
$DIVER_{i,t}$	0.01	0.93	0.00	0.19	-0.01	-1.42	-0.01	-0.52	-0.03	**-1.93**[b]	0.03	**7.83**[a]
$FX_{i,t}$	-0.12	**-2.90**[a]	-0.11	**-2.74**[a]	-0.22	**-2.40**[b]	0.08	**1.67**[c]	0.08	**2.17**[b]	0.03	1.46
$PR_{i,t}$	0.00	0.72	0.00	-1.29	0.00	-1.51	0.00	0.15	0.00	-1.36	0.00	**-4.52**[a]
$BPTCY_{i,t}$	0.00	0.45	0.00	0.77	0.00	**3.33**[a]	0.00	**-3.63**[a]	0.00	**-2.08**[b]	0.00	1.10
$BETA_{i,t}$	-0.14	-1.11	-0.38	**-6.01**[a]	-0.30	**-3.67**[a]	-0.23	**-1.66**[c]	-0.16	-1.53	-0.16	**-3.86**[a]
$ATR_{i,t}$	-0.53	**-2.26**[b]	-1.04	**-2.53**[b]	0.38	**1.70**[b]	-0.64	**-2.93**[a]	-0.60	-1.56	-0.90	**-6.04**[a]
$NDTS_{i,t}$	0.00	**2.62**[b]	0.00	0.60	0.01	**2.41**[b]	0.00	-0.62	0.00	1.23	0.00	0.78
$SIZE_{i,t}$	0.07	**8.25**[a]	0.06	**7.74**[a]	0.10	**25.35**[a]	0.04	**3.79**[a]	0.09	**14.79**[a]	0.06	**26.21**[a]
$CVA_{i,t}$	0.11	**2.18**[b]	0.26	**5.40**[a]	0.20	**4.84**[a]	0.23	**3.64**[a]	0.19	**5.52**[a]	0.27	**12.67**[a]
$AGE_{i,t}$	-0.06	**-3.99**[a]	-0.01	-1.43	0.08	**4.12**[a]	0.05	**3.41**[a]	-0.01	-0.94	-0.04	**-6.71**[a]
$PROF_{i,t}$	-0.06	**-2.44**[b]	-0.30	**-2.42**[b]	-3.01	**-9.36**[a]	-0.06	-1.48	-0.36	**-3.49**[a]	-0.23	**-5.99**[a]
$DIVC_{i,t}$	-0.09	**-2.59**[b]	0.17	**4.59**[a]	-0.02	-0.63	-0.07	-1.45	-0.26	**-8.97**[a]	-0.06	**-3.63**[a]
$FCF_{i,t}$	-0.04	**-1.91**	0.00	1.53	0.65	**4.67**[a]	-0.02	-1.36	0.01	1.18	0.00	1.51
$GROW\_MB_{i,t}$	-0.01	**-2.57**[b]	0.00	**-2.29**[b]	0.00	-0.42	0.00	**3.18**[a]	0.00	**2.28**[b]	0.00	**-3.67**[a]
$M\_DIVER_{i,t}$	-0.04	**-2.27**[b]	-0.02	**-2.02**[b]	0.01	1.31	-0.01	-0.54	0.00	-0.15	-0.05	**-9.13**[a]
$M\_FX_{i,t}$	0.09	1.49	0.08	1.62	0.23	**2.37**[b]	-0.08	-1.42	-0.05	-0.72	-0.03	-1.08
$M\_PR_{i,t}$	0.00	0.96	0.00	1.12	0.01	**1.92**[b]	0.01	**2.15**[b]	0.01	**1.65**[c]	0.00	**2.90**[a]
$M\_BPTCY_{i,t}$	0.00	-0.93	0.00	-1.12	0.00	**-3.34**[a]	0.00	0.86	-0.02	**-3.57**[a]	0.00	1.59
$M\_BETA_{i,t}$	-0.23	-1.16	0.20	**2.61**[b]	0.06	0.64	-0.11	-0.66	0.58	**2.21**[b]	0.01	0.24
$M\_ATR_{i,t}$	0.31	0.68	-2.47	**-4.85**[a]	-2.16	**-4.60**[a]	0.63	**2.64**[b]	-2.32	**-2.61**[b]	0.15	0.65
$M\_NDTS_{i,t}$	-0.01	-0.56	0.00	-0.51	-0.01	**-1.85**[b]	0.00	0.16	0.02	**2.26**[b]	0.00	0.00
$M\_SIZE_{i,t}$	-0.01	-0.55	0.01	0.84	-0.01	**-2.27**[b]	0.03	**2.43**[b]	-0.06	**-4.22**[a]	0.00	-0.69
$M\_CVA_{i,t}$	-0.15	-1.61	0.19	**2.98**[a]	0.28	**3.52**[a]	-0.09	-1.25	0.02	0.17	0.01	0.34
$M\_AGE_{i,t}$	0.08	**2.30**[b]	-0.04	**-3.28**[a]	-0.07	**-2.37**[b]	-0.03	-1.59	0.05	1.60	-0.01	**-1.79**[c]
$M\_PROF_{i,t}$	0.02	0.28	-1.04	**-5.73**[a]	1.71	**3.54**[a]	-0.01	-0.19	0.04	0.10	-0.07	-0.86
$M\_DIVC_{i,t}$	-0.04	-0.58	-0.10	**-2.19**[b]	-0.03	-0.68	0.09	1.44	-0.18	**-2.12**[b]	0.06	**2.74**[a]
$M\_FCF_{i,t}$	-0.14	**-2.67**[b]	0.00	-1.44	-0.64	**-4.58**[a]	0.01	0.37	-0.24	**-3.44**[a]	0.00	-1.42
$M\_GROW\_MB_{i,t}$	0.01	**1.87**[b]	0.00	1.01	0.00	**2.73**[a]	0.00	-0.98	-0.02	**-2.06**[b]	0.00	-1.45
No. of Obs	2248		2788		1907		2188		2825		11956	
Adj R-sqr	0.36		0.34		0.54		0.23		0.22		0.25	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

4.6.3.3 Country Hypothesis

Distinguishing cross-country DCs' and MCs' debt ratio determinants has some advantages over a single country's DCs and MCs debt ratio comparison. As mentioned earlier, a direct country effect comparison can reveal linkages between institutional differences and empirical results about the capital structure of DCs and MCs. The previous Model II will be used in this section again with a slight alteration of the silencing constant in the regression in order to investigate the average effect of every sample countries influence on the short-term and long-term debt ratios for DCs and MCs. It is assumed here that the previous literature on capital structure does not vary from country to country and hence on average the debt level determinants would be similar. However, in reality, they might be different due to different tax, bankruptcy and agency laws. Therefore, a direct country effect test will be carried out later. A direct country effect and debt ratio test was carried out earlier in Table 4.5. Therefore, additional five dummy variables were introduced to control for country effect. This would capture a consistent magnitude of country effect (indicated by the country dummy variable coefficient on each variable).

The results indicate two important aspects. Firstly, all the sample countries' dummy reports significant positive coefficients (t=4.27; 4.90; 8.42; 4.39 and 8.59) respectively to explain short-term debt. Secondly, four out of five sample countries state significant negative relationship with long-term debt and they are Australia, Japan, U.K. and Malaysia (t=-3.54; -6.13; -1.75 and -3.09). The result for short-term debt suggests that the magnitude of country dummy variables coefficients is similar across Australia (0.12), U.S. (0.13) and U.K. (0.12). However, for long-term debt the magnitude of country dummy coefficients ranges from -0.10 to -0.41. While the positive coefficients suggests that the net effect of the fifteen variables at fixed level would increase by the magnitude of positive coefficients, the negative coefficients on the other hand suggest that the long-term debt explanatory variables on a fixed level would decrease by the proportion of the magnitude across fifteen variables for those five countries. As it is indicated in the table, among those five countries, U.K. has the lowest significant negative influence on debt ratio.

When a additional dummy variable is used in Model II to capture the effect of imputation tax system and multinationality on short-term debt and long-term debt, it shows that firms operating under the imputation tax system appears to have negative and highly significantly relationship in explaining both short-term debt (t=-6.27) and long-term debt (t=-3.54) ratios and this is presented in Table 4.10. This result is an evidence of Modigliani and Miller's (1963) wrong assumption that financing choice between debt or equity is irrelevant under any tax regime and therefore returns to the shareholders will be the same regardless of whether the firm is levered or unlevered. Under a realistic assumption, where corporate tax and debt financing have an important advantage over equity, the interest payments of the firm are tax deductible. The results in our investigation suggest that as the average tax rate increases for firms operating under the imputation tax system, those firms will employ less long-term and short-term debt. Further, MCs that are operating under the imputation tax regime employs even less long-term debt. This evidence is consistent with the theory that, under a classical tax system, debt is preferred over equity due to double taxation benefit on interest expense on debt and under imputation tax system debt is preferred less as tax claim on interest deductibility is only once (Bishop et al., 2003). Out of five sample countries, Australia has been a purely imputation tax country over the whole sample period, while U.K. was recognised as an imputation tax regime country for only 1995-1997. Given the result predominantly captures the effect of Australian imputation tax system on debt, a little caution is necessary in interpreting the results as it might not be a good representative of imputation tax effect on debt around the world. Nevertheless, the results indicate that DCs in imputation tax regimes use less short-term debt than MCs. On the other hand, holding all other things constant, MCs in imputation tax regimes hold significantly less long-term debt than DCs. This is an indication that firms in imputation tax regimes may prefer equity when raising external funds as the investors' benefit more on the capital gains tax of equity investment than the interest benefit on interest expense. Secondly, investors with longer holding periods or with accrued losses face a lower tax rate on equity income, which as a result decreases the effective tax advantage of debt.[41] This evidence is

[41] With regard to the capital gains tax rate, we assume that investors paid capital gains taxes every year. But unlike taxes on interest income or dividends, which are paid annually, capital gains taxes are paid only at the time the

consistent with Twite (2001). Further, it also implies that high tax rates with more volatile earnings results in a negative relationship.

The legal regimes also appear to be a highly significant explanatory variable in explaining the short-term and long-term debt across DCs and MCs. Results show that firms in general hold significantly lower short-term debt relative to civil law countries (t=-15.02) and significantly higher for long-term debt (t=28.02). This result suggest that creditors operating under common law regimes have better protection against their lending and therefore firms are able to raise more long-term debt relative to firms operating under civil law legal regime (La Porta et. Al, 2000). Further, MCs operating under common law countries, and the impact of this unique legal regime on capital structure decision for MCs are also captured. Results show that MCs in common law countries hold significantly higher short-term debt relative to DCs (t=1.90) but hold significantly lower long-term debt relative to DCs (t=-2.43). This implies that MCs in common law countries raise more short-term debt to meet financial obligations through financing internationally. Given, this evidence is found for the first time, therefore, no reference is made in relation to MCs debt raising activities in common law countries.

Table 4.10
Country, tax system and legal regimes effect in determining capital structure

This table reports the variables and expected signs of the hypotheses. There are two dependent variables and a total of twenty two independent variables. The following model is utilised:

$$Leverage\ (L)_{(it)} = \beta_0 + \beta_1\ MULT_{i,t} + \sum \beta_2 X_{International\_factors(i,t)} + \sum \beta_3 X_{Tradeoff\_factors(i,t)} + \sum \beta_4 X_{Firm\_peckingorder(i,t)} + \sum \beta_5 X_{country\_dummy(i,t)} + \sum \beta_6 X_{Tax\_System(i,t)} + \sum \beta_7 X_{Legal\_Regimes(i,t)} + e_{(it)}$$

There are two dependent variables. The dependent variables are measured as long-term debt to long-term debt and market value of assets which is indicated by $LTD\_MV_{i,t}$ and $STD\_BV_{i,t}$ is the short-term book value debt scaled by total asset respectively. The independent variables are measured as: $MULT_{i,t}$ – *multinationality* takes a value of 1 (unity) if the corporation is multinational corporations otherwise it is 0 (domestic corporations). The variables are measured in the following manner: The independent variables are measured in the following manner: $DIVER_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. $FX_{i,t}$ – *foreign exchange risk* is measured as a ratio of foreign sales to total sales. $PR_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. $BPTCY_{i,t}$ – *bankruptcy risk* is measured as the standard deviation of last five years earrings volatility of firm's earnings before interest and taxes. $BETA_{i,t}$ – *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index – market model. $NDTS_{i,t}$ (Non-debt Tax Shield) is calculated by total annual depreciation expense over total assets. $ATX_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. $SIZE_{i,t}$ – *size* variable is measured as natural logarithm of total assets. $CVA_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. $AGE_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until 2004. $PROF_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. $DIVC_{i,t}$ – *dividend payout ratios* is a ratio of total cash dividend paid to net income (note losses made any year has been deleted from sample). $AGC_{i,t}$ is defines as is the

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investor sells the stock and realise the gain. Deferring the payment of capital gain taxes lowers the present value of the taxes, which can be interpreted as a lower effective capital gains tax rate. For example, given a capital gains tax rate of 15% and an interest rate of 6%, holding the asset for 10 more years lowers the effective tax rate this year to $(15\%)/(1.06^{10}) = 8.4\%$. Also, investors with accrued losses that they can use to offset gains face a zero effective capital gains tax rate. As a consequence, investors with longer holding periods or with accrued losses end up paying a lower tax rate on equity income, which in turn reduces the tax advantage of debt.

natural logarithm of total shareholders. *FCF* $_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. *GROW* $_{i,t}$ – *growth* is the market value of equity over total assets. Note that this table has incorporated an indicative dummy for the first three proposed models to control for average country effect on each explanatory factor. a, b and c are the statistical significance levels for 1%, 5% and 10% respectively.

	STD_BV		LTD_MV		STD_BV		LTD_MV		STD_BV		LTD_MV	
Variable	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C					0.28	**3.08**[a]	0.09	**1.70**[b]	0.48	**2.51**[a]	-0.56	**-10.37**[a]
$MULT_{i,t}$	0.00	0.64	-0.02	**-1.89**[a]	0.02	**4.83**[a]	-0.06	**-6.04**[a]	0.01	**1.90**[b]	-0.02	**-2.43**[b]
$DIVER_{i,t}$	0.01	**8.36**[a]	-0.01	**-4.38**[a]	0.00	1.18	0.00	**1.69**[c]	0.00	**4.49**[a]	-0.01	**-2.03**[b]
$FX_{i,t}$	0.00	-0.23	-0.04	**-3.17**[a]	-0.03	**-5.41**[a]	0.02	1.42	-0.01	**-2.64**[b]	-0.03	**-2.50**[b]
$PR_{i,t}$	0.00	**-2.20**[b]	0.00	0.81	0.00	**-8.34**[a]	0.00	**-1.70**[b]	0.00	**-13.48**[a]	0.00	**2.85**[a]
$BPTCY_{i,t}$	0.00	**-2.54**	0.00	**3.09**[a]	0.00	**-3.48**[a]	0.00	**3.11**[a]	0.00	**-2.86**[a]	0.00	**3.16**[a]
$BETA_{i,t}$	-0.04	**-4.36**[a]	-0.34	**-12.67**[a]	-0.10	**-12.13**[a]	-0.17	**-6.73**[a]	-0.05	**-6.82**[a]	-0.28	**-11.59**[a]
$ATR_{i,t}$	-0.13	**-2.28**[b]	-0.78	**-6.13**[a]	-0.18	**-3.05**[a]	-0.80	**-6.15**[a]	-0.19	**-3.39**[a]	-0.73	**-5.95**[a]
$NDTS_{i,t}$	0.00	**7.37**[a]	0.00	**4.83**[a]	0.00	**5.95**[a]	0.00	**3.15**[a]	0.00	**7.25**[a]	0.00	**4.46**[a]
$SIZE_{i,t}$	0.00	**-1.71**[b]	0.08	**4.87**[a]	0.00	**6.39**[a]	0.06	**4.74**[a]	0.00	-0.90	0.08	**5.47**[a]
$CVA_{i,t}$	0.02	**3.31**[a]	0.25	**5.70**[a]	0.02	**2.77**[a]	0.28	**6.77**[a]	0.02	**3.91**[a]	0.25	**15.93**[a]
$AGE_{i,t}$	0.01	**4.46**[a]	-0.02	**-3.73**[a]	0.02	**1.55**[a]	-0.05	**-2.14**[a]	0.01	**4.72**[a]	-0.02	**-3.70**[a]
$PROF_{i,t}$	-0.10	**-4.83**[a]	-0.28	**-7.08**[a]	-0.11	**-4.89**[a]	-0.25	**-7.15**[a]	-0.10	**-4.68**[a]	-0.27	**-6.95**[a]
$DIVC_{i,t}$	-0.02	**-5.29**[a]	-0.04	**-3.72**[a]	-0.03	**-7.35**[a]	-0.03	**-2.51**[b]	-0.03	**-7.58**[a]	-0.04	**-3.54**[a]
$FCF_{i,t}$	0.00	**-2.05**[b]	0.00	**6.79**[a]	0.00	**-2.99**[a]	0.00	**8.41**[a]	0.00	**-2.39**[a]	0.00	**7.00**[a]
$GROW\_MB_{i,t}$	0.00	-1.51	0.00	**-3.30**[a]	0.00	**2.57**[b]	0.00	**-6.00**[a]	0.00	-1.08	0.00	**-3.40**[a]
COUNTRY_AUS	0.12	**4.27**[a]	-0.24	**-3.54**[a]								
COUNTRY_USA	0.13	**4.90**[a]	-0.10	-1.54								
COUNTRY_JPN	0.23	**8.42**[a]	-0.41	**-6.13**[a]								
COUNTRY_GBR	0.12	**4.39**[a]	-0.12	**-1.75**[b]								
COUNTRY_MYS	0.21	**8.59**[a]	-0.19	**-3.09**[a]								
IMPUTATION_TAX					-0.03	**-6.27**[a]	-0.04	**-3.54**[a]				
COMMON_LAW									-0.07	**-15.02**[a]	0.27	**28.02**[a]
No. of Obs	11956		11956		11956		11956		11956		11956	
Adj R-sqr	0.22		0.30		0.17		0.24		0.20		0.29	

However, the above analysis does not necessarily show direct institutional differences which were proxied by various debt level determinants across countries. As discussed earlier, agency, bankruptcy and tax laws are different across countries (Antonios, Yilmaz & Krishna, 2002); however, previously no formal test has been conducted to capture this effect. The interaction dummy variable is used to find the significant difference of the common 14 variables across five countries. For example, *DIVER*CNTRY* takes the actual value of a country while it is 0 for the other four countries. This procedure is followed for both DCs and MCs using Model I and the results are presented in Table 4.11. The regressions are estimated on the pooled sample of all DCs and the pooled sample of all MCs using interactive country dummy variable on each independent variable so that it permits the coefficients on each independent variable to differ across countries in the sample. The reason for conducting such regressions is to investigate whether the firm-specific factors across countries reveal a country-specific institutional effect on debt ratios. It is believed that factors would vary across countries since firms are at different stages of maturity in their business cycle.

The results in Table 4.11 present an empirical result since they reveal a direct institutional difference across countries that impacts on capital structure determinants. The results suggest that among the five sample countries of DCs, the geographical diversification (*DIVER*CNTRY*) significantly lowers the long-term debt ratio across DCs in Australia, U.K., Japan and Malaysia (t=-2.21; -2.61; -3.14 and -7.60) and only Japanese MCs' geographical diversification significantly assists to raise higher long-term debt (t=3.37).

The foreign exchange interaction variable (*FX_CNTRY*) suggests that Australian and U.S. DCs are almost equally exposed to foreign exchange exposure as far as long-term debt is concerned. The negative significant impact of foreign exchange exposure on long-term debt is observed in Australia (t=-4.45), U.S. (t=-4.45) and Japan (t=-2.16). As for Malaysian DCs; however, foreign exchange risks have a significantly positive relationship with long-term debt ratio compared to the other four countries. Among the five sample countries' MCs, only U.K. MCs have significantly different slope of *FX_CNTRY* and have a negative impact of foreign exchange exposure to long-term debt (t=-2.40).

In Australia and Malaysia, the results show that the slope difference of political risk has a different impact on long-term debt across DCs (insignificant but positive relationship for Australia: t=1.25 and insignificant but negative relationship for Malaysia) and MCs (significant and negative relationship for Australia: t=-1.74 and significant and positive for Malaysia). In the rest of the three countries the determining sign and significance level is similar across DCs and MCs (U.S.: t=1.67 for DCs and t=4.58 for MCs; Japan: t=-9.01 for DCs and t=-5.53 for MCs; U.K.: t=-2.13 for DCs and t=-4.93 for MCs).

In the traditional static trade-off theory and pecking order theory, the results suggest that average tax rate, non-debt tax shield, profitability, collateral value of assets, free cash flow and growth opportunities for Australian DCs are significantly different from other countries' DCs. Among those six significant explanatory factors, the first three assist to increase long-term debt significantly (t=1.65; 1.79; -3.59; 4.14) while the last three significantly reduce the long-term debt capacity. On the other hand, the traditional explanatory variables for Australian MCs that are significantly different from the rest of the sample countries are collateral value of assets (t=-4.36), age (t=2.88), profitability (t=2.61), dividend payments (t=-2.27), free cash flow (t=-3.88) and growth (t=-2.52).

In terms of the interaction variables effect of traditional capital structure variables and their impact on U.S. firms, it show that only dividend payments is positive and highly significant (t=7.91) to explain the long-term debt ratio for U.S. DCs relative to the other four countries' DCs in the sample. The result also suggests that the positive and significant interactive variables are bankruptcy costs, collateral value of assets and dividend payments (t=3.63; 5.10; 2.75 respectively) while the negative interactive variables are average tax rate, age and profitability (t=-11.61; -3.16 and -8.91 respectively) which differentiates U.S. MCs' capital structure determinants relative to the other four countries.

As for Japanese DCs, the significant different country slope coefficients are firm risk (t=3.23), marginal tax rate (t=3.83), non-debt tax shields (t=2.30), size (t=2.30), age (t=3.60), profitability (t=-8.70) and free cash flow (t=4.74). And for MCs on the other hand, average tax rate (t=-2.41), size (t=2.87), collateral value of assets (t=3.49), profitability (t=-2.99) and free cash flow (t=6.51) variables are significantly different relative to the other four countries MCs. The negative significant relationship of the slope variables suggests decrease of debt capacity while positive significant country slope coefficients suggests assisting increase in debt.

The significant slope difference of country variable for U.K.'s DCs are bankruptcy risk, size and free cash flow (t=-3.84; 2.35 and -1.87 respectively) and positive explanatory variables are age, profitability and growth (t=6.42; 3.24 and 3.54). For U.K. MCs, the significant slope country variables are firm risk (t=-1.91), bankruptcy risk (t=-3.01), average tax rate (t=9.51), non-debt tax shield (t=-2.83), collateral value of assets (t=-6.02), age (t=9.15) and profitability (6.64).

Lastly, the coefficients that significantly reduce holding long-term debt for Malaysian DCs relative to other countries are firm risk (t=-2.06), size (4.71), collateral value of assets (t=-1.92), age (t=3.20), profitability (t=-2.07), dividend payment (t=-8.74) and growth (t=2.03). In contrast, Malaysian MCs have the following variables significantly different relative to the other four countries which have increasing and decreasing effects: the increasing effects of variable are firm risk (t=-3.72), bankruptcy risk (t=2.04), average tax rate (t=-2.93), non-debt tax shield (t=2.23), size (t=-1.85), age (t=3.39), dividend payment (t=-6.05), free cash flows (t=-3.32) and growth opportunity (t=-1.96).

Table 4.11

A direct testing of DCs' and MCs' characteristics and institutional difference in determining capital structure across 5 sampled countries

The dependent variable is measured as long-term debt to short-term debt and market value of assets which is indicated by $LTD_{i,t}$. The variables are measured in the following manner: The independent variables are measured in the following manner: $DIVER_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. $FX_{i,t}$ – *foreign exchange risk* is measured as a ratio of foreign sales to total sales. $PR_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. $BPTCY_{i,t}$ – *bankruptcy risk* is measured as the standard deviation of last five years earrings volatility of firm's earnings before interest and taxes. $BETA_{i,t}$ – *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index – market model. $NDTS_{i,t}$ (Non-debt Tax Shield) is calculated by total annual depreciation expense over total assets. $ATX_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. $SIZE_{i,t}$ – *size* variable is measured as natural logarithm of total assets. $CVA_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. $AGE_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until 2004. $PROF_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. $DIVC_{i,t}$ – *dividend payout ratios* is a ratio of cash dividend paid to net income (note losses made any year has been deleted from sample). AGC $_{i,t}$ is defines as is the natural logarithm of total shareholders. $FCF_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. $GROW_{i,t}$ – *growth* is the market value of equity over total assets. a, b and c are the statistical significance level for 1%, 5% and 10% respectively. The following model which is an extension of Model I is employed to obtain the results in this table.

$$Leverage\,(L)_{(i,t)} = \beta_0 + \sum \beta_1 X_{International\_factors(i,t)} + \sum \beta_2 X_{Tradeoff\_factors(i,t)} + \sum \beta_3 X_{Firm\_peckingorder(i,t)} + Country * \sum \beta_4 X_{International\_factors(i,t)}$$
$$+ Country * \sum \beta_5 X_{Tradeoff\_factors(i,t)} + Country * \sum \beta_6 X_{Firm\_peckingorder(i,t)} + e_{(i,t)}$$

	AU - DCs		US - DCs		JP - DCs		GB - DCs		MY – DCs		AU - MCs		US - MCs		JP - MCs		GB - MCs		MY - MCs	
Variable	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	0.24	3.60^{a}	0.32	5.02^{a}	-0.27	-3.87^{a}	0.29	4.35^{a}	-0.10	-1.11	-0.06	-0.61	0.01	0.10	-0.30	-3.19^{a}	0.02	0.20	-0.37	-3.70^{a}
$DIVER_{i,t}$	0.03	7.75^{a}	-0.01	-1.65^{c}	0.01	1.42	0.03	7.64^{a}	0.04	10.23^{a}	-0.01	-3.62^{a}	-0.02	-3.81^{a}	-0.03	-5.87^{a}	-0.01	-3.40^{a}	-0.01	-2.47^{a}
$FX_{i,t}$	0.05	2.08^{b}	0.10	3.75^{a}	-0.01	-0.43	0.03	1.36	-0.02	-0.68	0.02	1.25	0.03	1.45	-0.04	-2.00^{a}	0.03	1.64	0.02	0.94
$PR_{i,t}$	0.00	-4.01^{a}	0.00	-5.52^{a}	0.00	0.88	0.00	-4.50^{a}	0.00	-0.38	0.00	1.11	0.00	-0.48	0.00	3.14^{a}	0.00	1.00	0.00	3.87^{a}
$BPTCY_{i,t}$	0.00	1.12	0.00	0.82	0.00	-2.25^{b}	0.00	1.16	0.00	2.06^{b}	0.00	3.20^{a}	0.00	3.14^{a}	0.00	-1.48	0.00	2.67^{a}	0.00	3.26^{a}
$BETA_{i,t}$	-0.17	-4.01^{a}	-0.40	-6.74^{a}	-0.25	-5.41^{a}	-0.17	-4.08^{a}	-0.16	-3.61^{a}	-0.11	-3.65^{a}	-0.39	-8.35^{a}	-0.24	-6.16^{a}	-0.04	-1.36	-0.09	-3.05^{a}
$ATR_{i,t}$	-1.06	-5.83^{a}	-0.87	-5.83^{a}	-0.82	-4.85^{a}	-1.06	-5.79^{a}	-0.48	-3.42^{a}	-0.84	-4.05^{a}	-0.16	-1.80^{c}	-0.78	-4.36^{a}	-2.38	-10.48^{a}	-0.56	-4.09^{a}
$NDTS_{i,t}$	0.00	0.68	0.00	1.28	0.00	0.22	0.00	0.73	0.00	1.07	0.00	4.12^{a}	0.00	-0.99	0.00	7.04^{a}	0.00	7.72^{a}	0.00	3.65^{a}
$SIZE_{i,t}$	0.06	24.19^{a}	0.05	21.81^{a}	0.09	26.30^{a}	0.06	25.01^{a}	0.06	23.05^{a}	0.05	25.53^{a}	0.05	20.91^{a}	0.07	20.30^{a}	0.06	22.03^{a}	0.06	26.59^{a}
$CVA_{i,t}$	0.28	12.14^{a}	0.21	8.76^{a}	0.25	11.15^{a}	0.27	11.84^{a}	0.28	10.07^{a}	0.32	11.29^{a}	0.22	6.72^{a}	0.22	7.72^{a}	0.42	12.79^{a}	0.30	11.61^{a}
$AGE_{i,t}$	-0.04	-6.08^{a}	-0.02	-2.67^{a}	-0.01	-1.73^{c}	-0.05	-9.09^{a}	-0.04	-5.71^{a}	-0.06	-10.11^{a}	-0.02	-2.53^{a}	-0.02	-3.84^{a}	-0.09	-13.46^{a}	-0.06	-10.56^{a}
$PROF_{i,t}$	-0.32	-5.58^{a}	-0.18	-4.44^{a}	-0.24	-5.61^{a}	-0.26	-5.63^{a}	-0.15	-5.25^{a}	-0.29	-3.96^{a}	-0.13	-3.15^{a}	-0.30	-3.99^{a}	-0.91	-7.61^{a}	-0.25	-4.10^{a}
$DIVC_{i,t}$	-0.06	-3.15^{a}	-0.15	-8.31^{a}	-0.07	-4.04^{a}	-0.07	-3.79^{a}	0.05	2.38^{a}	0.01	0.49	-0.04	-1.72^{c}	0.01	0.33	-0.01	-0.45	0.04	2.29^{b}
$FCF_{i,t}$	0.00	2.29^{b}	0.00	-0.51	0.00	0.93	0.00	1.82^{b}	0.00	2.26^{a}	0.00	12.76^{a}	0.00	0.02	0.00	12.15^{a}	0.00	13.27^{a}	0.00	12.81^{a}
$GROW\_MB_{i,t}$	0.00	-3.63^{a}	0.00	-2.08^{b}	0.00	0.50	0.00	-3.71^{a}	0.00	-3.95^{a}	0.00	-6.52^{a}	0.00	-6.00^{a}	0.00	1.52	0.00	-5.00^{a}	0.00	-6.37^{a}

Table 4.11 Continued…

*$DIVER_{i,t}$*CNTRY*	-0.03	**-2.21**[b]	0.01	1.13	-0.03	**-2.61**[a]	-0.04	**-3.14**[a]	-0.10	**-7.60**[a]	-0.01	-0.64	0.00	-0.50	0.02	**3.37**[a]	-0.01	-0.93	-0.02	-1.62
*$FX_{i,t}$*CNTRY*	-0.20	**-4.45**[a]	-0.20	**-4.45**[a]	-0.20	**-2.16**[a]	0.03	0.51	0.09	**2.02**[b]	-0.05	-1.05	-0.05	-1.42	0.04	1.11	-0.07	**-2.40**[a]	-0.01	-0.10
*$PR_{i,t}$*CNTRY*	0.00	1.25	0.00	**1.67**[c]	-0.01	**-9.01**[a]	0.00	**-2.13**[a]	0.00	-1.62	0.00	**-1.74**[c]	0.00	**4.58**[a]	-0.01	**-5.53**[a]	0.00	**-4.93**[a]	0.00	**2.39**[a]
*$BPTCY_{i,t}$*CNTRY*	0.00	0.50	0.00	0.26	0.00	**3.23**[a]	0.00	**-3.84**[a]	0.00	**-2.06**[b]	0.00	**-2.20**[a]	0.00	-0.98	0.00	1.48	0.00	-1.91	-0.02	**-3.72**[a]
*$BETA_{i,t}$*CNTRY*	0.04	0.28	0.02	0.28	-0.08	-0.91	-0.05	-0.37	-0.01	-0.08	-0.20	-1.46	0.23	**3.63**[a]	-0.03	-0.47	-0.29	**-3.01**[a]	0.50	**2.04**[b]
*$ATR_{i,t}$*CNTRY*	0.46	**1.65**[c]	-0.18	-0.41	1.04	**3.83**[a]	0.42	1.52	-0.16	-0.39	0.52	1.14	-3.68	**-11.61**[a]	-1.10	**-2.41**[a]	2.36	**9.51**[a]	-2.29	**-2.93**[a]
*$NDTS_{i,t}$*CNTRY*	0.00	**1.79**[c]	0.00	0.41	0.01	**2.30**[a]	0.00	-1.38	0.00	-0.89	0.00	0.01	0.00	1.36	0.00	0.20	0.00	**-2.83**[a]	0.02	**2.23**[b]
*$SIZE_{i,t}$*CNTRY*	0.01	1.56	0.00	0.41	0.01	**2.30**[a]	-0.02	**-2.35**[a]	0.03	**4.71**[a]	0.00	0.13	0.00	0.39	0.01	**2.87**[a]	0.01	0.86	-0.03	**-1.85**[c]
*$CVA_{i,t}$*CNTRY*	-0.18	**-3.59**[a]	0.05	0.96	-0.06	-1.20	-0.04	-0.60	-0.09	**-1.92**[c]	-0.36	**-4.36**[a]	0.27	**5.10**[a]	0.26	**3.49**[a]	-0.32	**-6.02**[a]	-0.08	-0.81
*$AGE_{i,t}$*CNTRY*	-0.02	-1.32	0.00	0.40	0.07	**3.60**[a]	0.10	**6.42**[a]	0.04	**3.20**[a]	0.08	**2.88**[a]	-0.03	**-3.16**[a]	0.01	0.29	0.10	**9.15**[a]	0.11	**3.39**[a]
*$PROF_{i,t}$*CNTRY*	0.26	**4.14**[a]	-0.13	-0.98	-2.84	**-8.70**[a]	0.19	**3.24**[a]	-0.23	**-2.07**[b]	0.27	**2.61**[a]	-1.29	**-8.91**[a]	-1.11	**-2.99**[a]	0.84	**6.64**[a]	-0.08	-0.21
*$DIVC_{i,t}$*CNTRY*	-0.04	-0.94	0.31	**7.91**[a]	0.05	1.45	-0.01	-0.16	-0.31	**-8.74**[a]	-0.13	**-2.27**[b]	0.09	**2.75**[a]	-0.05	-1.60	0.03	0.87	-0.49	**-6.05**[a]
*$FCF_{i,t}$*CNTRY*	-0.04	**-2.31**[b]	0.01	0.93	0.67	**4.74**[a]	-0.02	**-1.87**[c]	0.00	0.11	-0.19	**-3.88**[a]	0.00	0.00	0.01	**6.51**[a]	-0.01	-0.52	-0.23	**-3.32**[a]
*$GROW\_MB_{i,t}$*CNTRY*	-0.02	**-2.90**[a]	0.00	0.35	0.00	-0.83	0.00	**3.54**[a]	0.00	**2.03**[b]	0.00	**-2.52**[b]	0.00	0.70	0.00	-1.43	0.00	0.25	-0.02	**-1.96**[a]
No. of Obs	994		1371		1093		719		1861		1254		1417		814		1469		964	
Adj R-sqr	0.24		0.29		0.31		0.24		0.27		0.29		0.35		0.33		0.33		0.33	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

4.6.3.4 Industry Hypothesis

In this section, industry effect across the countries is tested for DCs and MCs. The purpose here is to see whether each country's industry has on average a similar effect on debt ratio in DCs and MCs using Model I and incorporating the dummy variables to control for industry- related issues.

The results suggest that Australian DCs do not experience any significant impact by industry characterisation with an exception of firms that belong to the construction industry (t=-1.65). Similarly, no notable significance difference is observed for Australian MCs either except for MCs firms that belong to the manufacturing industry (t=2.62). In the U.K., DCs that are in the agriculture, forest and fishing and mining industries have significantly higher debt than the rest of the industries (t=6.53 and 1.66) and DCs within transportation and communication industries have significantly less debt (t=-2.15). As for Japanese MCs, except for MCs that are in the mining industry, the rest of the industries have significantly positive and higher debt ratio across construction, manufacturing, transport and communication, wholesale, retail and services (t=3.48, 4.23, 3.66, 3.85, 2.34 and 1.90 respectively). U.K. DCs that are in the mining industry appear to have significantly less debt (t=-1.88) while DCs in the transport and communication industry have significantly higher long-term debt (t=2.63). The U.K. MCs that are in agricultural, forest and fisheries, manufacturing, transport and communication have a significantly positive impact on long-term debt (t=2.78, 3.71 and 3.52 respectively). Finally, in Malaysia, among nine industries, most industries have a significant negative relationship except for a few. For example, industries that have negative and significant relationship with debt are agricultural, forest and fisheries (t=-2.82), mining (t=-7.14) and retail (t=-2.28) while positive and significant relationships of industries are construction (t=3.71) and transport and communication (t=3.19). Interestingly, no obvious significant relationship is observed between Malaysian MCs' industry categorisation and debt. Lastly, it can be concluded that controlling for industry affect across countries and also across firms supports the industry hypothesis (Bradley, Jarrell & Kim, 1984). Further, most of the independent determinants coefficients signs and level of significance remained unchanged.

Table 4.12
Industry effect on 5 sampled countries DCs and MCs capital structure

The dependent variable is measured as long-term debt to short-term debt and market value of assets which is indicated by $LTD_{i,t}$. The variables are measured in the following manner: The independent variables are measured in the following manner: $DIVER_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. $FX_{i,t}$ – *foreign exchange risk* is measured as a ratio of foreign sales to total sales. $PR_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. $BPTCY_{i,t}$ – *bankruptcy risk* is measured as the standard deviation of last five years earrings volatility of firm's earnings before interest and taxes. $BETA_{i,t}$ – *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index – market model. $NDTS_{i,t}$ (Non-debt Tax Shield) is calculated by total annual depreciation expense over total assets. $ATX_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. $SIZE_{i,t}$ – *size* variable is measured as natural logarithm of total assets. $CVA_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. $AGE_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until 2004. $PROF_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. $DIVC_{i,t}$ – *dividend payout ratios* is a ratio of cash dividend paid to net income (note losses made any year has been deleted from sample). AGC $_{i,t}$ is defines as is the natural logarithm of total shareholders. $FCF_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. $GROW\_MB_{i,t}$ – *growth* is the market value of equity over total assets. The acronyms for the industries are: agriculture, forestry and fishing (AFF); mining (MIN); construction (CON); manufacturing (MNF); transportations, communications and electricity (TCE); wholesale trade (WHL); retail trade (RET) and service (SER).
a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

$$Leverage\,(L)_{(i,t)} = \beta_0 + \sum \beta_1 X_{International\_factors(i,t)} + \sum \beta_2 X_{Tradeoff\_factors(i,t)} + \sum \beta_3 X_{Firm\_peckingorder(i,t)} + \sum \beta_4 IND_{(i,t)} + e_{(i,t)}$$

	AU - DCs		US - DCs		JP - DCs		GB - DCs		MY - DCs	
Variable	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	-0.02	-0.09	0.35	1.39	-0.65	**-3.06**^{a}	-0.48	**-1.86**^{c}	-0.03	-0.25
DIVER i,t	0.01	1.15	0.01	**1.66**^{c}	0.00	-0.10	0.00	0.16	-0.01	-0.39
FX i,t	-0.11	**-2.68**^{a}	-0.08	**-2.14**^{b}	-0.25	**-2.62**^{b}	0.07	1.16	0.09	**2.48**^{a}
PR i,t	0.00	0.30	0.00	-0.27	0.00	-1.59	0.00	1.02	0.00	-1.34
BPTCY i,t	0.00	1.07	0.00	-1.25	0.00	**2.75**^{a}	0.00	**-2.08**^{b}	0.00	-1.50
BETA i,t	-0.16	-1.27	-0.37	**-5.91**^{a}	-0.30	**-3.73**^{a}	-0.39	**-2.55**^{b}	-0.18	**-1.75**^{c}
ATR i,t	-0.52	**-2.13**^{b}	-0.84	**-2.03**^{b}	0.33	1.07	-0.71	**-2.92**^{a}	-0.76	**-1.86**^{c}
NDTS i,t	0.00	**2.47**^{a}	0.00	0.31	0.00	0.94	0.00	0.02	0.00	1.62
SIZE i,t	0.07	**6.86**^{a}	0.04	**5.37**^{a}	0.09	**20.66**^{a}	0.05	**3.57**^{a}	0.08	**11.82**^{a}
CVA i,t	0.18	**2.83**^{a}	0.07	1.21	0.29	**5.24**^{a}	0.16	**2.17**^{b}	0.24	**6.23**^{a}
AGE i,t	-0.05	**-3.81**^{a}	0.01	0.83	0.06	**3.34**^{a}	0.05	**3.06**^{a}	0.01	1.15
PROF i,t	-0.06	**-2.55**^{a}	-0.26	**-2.55**^{a}	-2.71	**-8.99**^{a}	-0.06	-1.26	-0.33	**-2.84**^{a}
DIVC i,t	-0.10	**-2.74**^{a}	0.09	**2.25**^{b}	-0.01	-0.31	-0.06	-1.19	-0.26	**-8.84**^{a}
FCF i,t	-0.04	**-1.75**	0.00	1.16	0.81	**4.67**^{a}	-0.02	-1.51	0.00	1.00
GROW_MB i,t	-0.02	**-2.49**^{a}	0.00	-0.53	0.00	0.31	0.00	1.60	0.00	**1.72**^{c}

	AU - MCs		US - MCs		JP - MCs		GB - MCs		MY - MCs	
Variable	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	-0.74	**-2.39**^{a}	0.33	**1.66**^{c}	-1.02	**-5.51**^{a}	-0.72	**-4.21**^{a}	-0.10	-0.34
DIVER i,t	-0.02	-0.86	-0.03	**-4.14**^{a}	0.00	-0.13	-0.02	**-1.91**^{c}	-0.03	**-2.27**^{b}
FX i,t	-0.05	-1.01	-0.02	-0.64	0.00	0.13	0.00	0.03	0.06	1.02
PR i,t	0.01	1.60	0.00	0.35	0.00	1.17	0.01	**3.43**^{a}	0.00	1.25
BPTCY i,t	0.00	-0.20	0.00	-0.67	0.00	-1.58	0.00	**-1.82**^{c}	-0.02	**-3.57**^{a}
BETA i,t	-0.36	**-2.29**^{b}	-0.19	**-4.75**^{a}	-0.22	**-3.86**^{a}	-0.26	**-2.81**^{a}	0.33	1.32
ATR i,t	0.06	0.15	-2.91	**-9.49**^{a}	-2.31	**-4.95**^{a}	-0.01	-0.08	-4.13	**-4.57**^{a}
NDTS i,t	-0.01	-0.62	0.00	**6.11**^{a}	0.00	0.11	0.00	**-1.89**^{c}	0.02	1.14
SIZE i,t	0.07	**3.80**^{a}	0.06	**7.91**^{a}	0.08	**23.36**^{a}	0.07	**8.33**^{a}	0.02	1.35
CVA i,t	0.04	0.45	0.46	**9.60**^{a}	0.59	**7.53**^{a}	0.12	**2.57**^{a}	0.30	**3.02**^{a}
AGE i,t	-0.01	-0.16	-0.06	**-7.65**^{a}	0.01	0.46	0.01	1.49	0.05	1.64
PROF i,t	-0.06	-0.71	-1.24	**-10.33**^{a}	-1.35	**-3.62**^{a}	-0.08	**-2.11**^{b}	-0.25	-0.71
DIVC i,t	-0.15	**-2.37**^{b}	0.02	1.03	-0.05	**-1.80**^{c}	-0.01	-0.26	-0.40	**-4.64**^{a}
FCF i,t	-0.16	**-3.06**^{a}	0.00	**14.88**^{a}	0.01	**6.14**^{a}	-0.01	-0.38	-0.24	**-3.36**^{a}
GROW_MB i,t	-0.01	**-2.57**^{b}	0.00	0.26	0.00	**3.95**^{a}	0.00	0.26	-0.02	-1.38

Table 4.2 Continued …

INDUST_A_AGRI_FRST_FISH	-0.04	-0.53	-0.37	**-3.60** [a]	0.50	**6.53** [a]			-0.10	**-2.82** [a]	0.29	1.27					0.12	**2.78** [a]	-0.09	-1.51
INDUST_B_MINING	-0.05	-1.37	-0.27	**-2.49** [a]	0.23	**1.66** [c]	-0.12	**-1.88** [b]	-0.23	**-7.14** [a]	-0.01	-0.10	-0.73	**-9.73** [a]	-0.10	**-1.65** [c]	-0.03	-0.95		
INDUST_C_CONSTRUCTN	-0.04	**-1.65** [c]			0.00	0.02	-0.07	-0.98	0.12	**3.71** [a]			-1.02	**-12.76** [a]	0.24	**3.48** [a]	0.05	0.89		
INDUST_D_MNFCTRNG	0.02	0.71	-0.22	**-2.31** [b]	0.01	0.11	0.03	0.68	0.00	-0.11	0.12	**2.62** [a]	-0.58	**-8.49** [a]	0.26	**4.23** [a]	0.07	**3.71** [a]		
INDUST_E_TRANSPRT_CMNCTN	0.04	0.56	-0.05	-0.55	-0.12	**-2.15** [b]	0.19	**2.63** [b]	0.11	**3.19** [a]	0.01	0.17	-0.47	**-6.41** [a]	0.25	**3.66** [a]	0.13	**3.52** [a]	0.21	0.07
INDUST_F_WHOLESALE	0.11	1.20	-0.47	**-5.00** [a]	-0.05	-0.72	0.01	0.11	0.01	0.16	-0.05	-0.79	-0.48	**-6.26** [a]	0.28	**3.85** [a]	0.05	1.36		
INDUST_G_RETAIL	0.04	1.00	-0.33	**-3.48** [a]	-0.03	-0.52	0.02	0.34	-0.08	**-2.28** [b]			-0.69	**-8.72** [a]	0.14	**2.34** [a]			-0.03	-0.31
INDUST_H_SERVICES															0.17	**1.90** [b]			-0.04	-0.61
INDUST_I_PUBLIC_ADMINSTR																				
No. of Obs	994		1371		1093		719		1861		1254		1417		814		1469		964	
Adj R-sqr	0.34				0.54		0.25		0.21		0.48		0.43		0.55		0.25		0.42	

4.6.3.5 Time Hypothesis

Table 4.13 presents the overall time effect on capital structure across five countries. The table shows the effect of time on leverage for DCs and MCs across 10 years. Table 4.13 shows a univariate regression (Panel A) that tests the overall time effect to investigate whether time has any significant effect on leverage. The result in Panel A shows that over time leverage decreases significantly for both Japanese DCs (t=-5.17) and MCs (t=-1.80). The positive significant results for DCs are: across Australia (t=1.93), U.S. (t=3.92), U.K. (t=1.66) and Malaysia (t=6.68) and for MCs across Australia (t=2.29), U.S. (t=3.92) and Malaysia (t=1.66). This result suggests that, overall, time has significant impact on DCs' and MCs' leverage, and the trends are similar across any countries' DCs and MCs.

A further analysis of individual year effects has been investigated to identify whether time effect has any significant variation in capital structure determinants, which might cause leverage to vary over time. In order to investigate whether capital structure determinants are time-sensitive, a regression is conducted using Model I and controlling for year effect. This is presented in Panel B. If the determinants stay similar across years, then no year should produce any significant negative or positive relationship. It shows that over time the significance of each explanatory variable varies across years and across countries and also across DCs and MCs. For example, Australian DCs debt ratio determinants increased significantly in recent years (t=1.73 and t=1.72). However, the determinants for Australian MCs fluctuated across years but the relationship is insignificant. Further, the results also indicate that MCs' capital structure determinants across countries do not vary significantly as much as DCs' determinants capital structure varies. For example, in 2003, U.S. MCs' year coefficient had a significant positive impact while Japanese MCs have negative and significant relationship with long-term debt (t=-3.10) and other MCs across countries had no significant impact on the capital structure determinants.

Table 4.13
The trend of time effect in 5 sampled countries capital structure

The dependent variable is measured as long-term debt to long-term debt and market value of assets which is indicated by $LTD_{i,t}$. The variables are measured in the following manner: The independent variables are measured in the following manner: $DIVER_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. $FX_{i,t}$ – *foreign exchange risk* is measured as a ratio of foreign sales to total sales. $PR_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. $BPTCY_{i,t}$ – *bankruptcy risk* is measured as the standard deviation of last five years earrings volatility of firm's earnings before interest and taxes. $BETA_{i,t}$ – *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index – market model. *NDTS* (Non-debt Tax Shield) is calculated by total annual depreciation expense over total assets. $ATX_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. $SIZE_{i,t}$ – *size* variable is measured as natural logarithm of total assets. $CVA_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. $AGE_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until 2004. $PROF_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. $DIVC_{i,t}$ – *dividend payout ratios* is a ratio of cash dividend paid to net income (note losses made any year has been deleted from sample). $AGC_{i,t}$ is defines as is the natural logarithm of total shareholders. $FCF_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. $GROW\_MB_{i,t}$ – *growth* is the market value of assets over total assets. a, b and c are the statistical significance level for 1%, 5% and 10% respectively. While the first regression is trying to capture total time effect, the second regression equation attempts to capture individual year effect.

$$LEV = C + \beta_1 Time_{it} + \varepsilon_{it}$$

$$Leverage\,(L)_{(i,t)} = \beta_0 + \sum \beta_1 X_{International\_factors(i,t)} + \sum \beta_2 X_{Tradeoff\_factors(i,t)} + \sum \beta_3 X_{Firm\_peckingorder(i,t)} + \sum \beta_4 Years\_Dummy_{(i,t)} + e_{(i,t)}$$

Panel A	AU - DCs		US – DCs		JP - DCs		GB - DCs		MY - DCs	
	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	-10.50	**-1.92**[c]	-20.50	**-3.85**[a]	23.48	**5.18**[a]	-21.20	-1.63	-29.59	**-6.63**[a]
Year	0.01	**1.93**[c]	0.01	**3.92**[a]	-0.01	**-5.17**[a]	0.01	**1.66**[c]	0.01	**6.68**[a]
No. of Obs	994		1371		1093		719		1861	
Adj R-sqr	0.00		0.00		0.01		0.03		0.02	
Panel B										
C	-0.16	-0.71	0.4	1.41	-0.87	-3.5	-0.3	-1.2	0.29	1.42
DIVER i,t	0.02	1.55	0.01	0.68	-0.02	-1.56	-0.01	-0.95	-0.03	**-2.00**[b]
FX i,t	-0.14	**-3.29**[a]	-0.17	**-3.19**[a]	-0.18	-1.91	0.09	**1.84**[c]	0.10	**2.56**[a]
PR i,t	0.00	0.74	0.00	-1.30	0.00	-0.44	0.00	0.26	-0.01	**-2.63**[a]
BPTCY i,t	0.00	1.35	0.00	**1.77**[c]	0.00	**3.36**[a]	0.00	**-3.20**[a]	0.00	**-2.53**[a]
BETA i,t	-0.12	-0.82	-0.52	**-7.02**[a]	-0.47	**-4.48**[a]	-0.27	**-1.80**[c]	-0.01	-0.05

Panel A	AU - MCs		US - MCs		JP - MCs		GB - MCs		MY - MCs	
	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	-18.10	**-2.28**[b]	-20.50	**-3.85**[a]	9.43	**1.83**[c]	3.66	0.88	-21.20	-1.63
Year	0.01	**2.29**[b]	0.01	**3.92**[a]	0.00	**-1.80**[c]	0.00	-0.86	0.01	**1.66**[c]
No. of Obs	1254		1417		814		1469		964	
Adj R-sqr	0.02		0.01		0.00		0.00		0.00	
Panel B										
C	-0.65	**-1.93**[c]	-0.27	-1.11	-1.12	**-4.84**[a]	-0.79	**-4.28**[a]	-0.07	-0.19
DIVER i,t	-0.03	**-2.11**[b]	-0.02	**-2.57**[a]	0.00	0.11	-0.01	-0.94	-0.03	**-2.01**[b]
FX i,t	-0.04	-0.79	-0.02	-0.82	0.04	1.34	-0.01	-0.33	0.03	0.40
PR i,t	0.01	1.40	0.00	0.10	0.01	**2.18**[b]	0.01	**3.82**[a]	0.00	0.77
BPTCY i,t	0.00	-0.55	0.00	-0.96	0.00	-0.33	0.00	**-1.94**[c]	-0.02	**-3.33**[a]
BETA i,t	-0.32	**-2.18**[b]	-0.28	**-5.30**[a]	-0.37	**-3.96**[a]	-0.38	**-3.94**[a]	0.56	**2.00**[b]

Table 4.13 Continued ...

$ATR_{i,t}$	-0.57	**-2.49**[a]	-0.83	**-2.11**[b]	0.47	**2.06**[b]	-0.58	**-2.83**[a]	-0.61	-1.61	-0.23	-0.57	-3.44	**-11.36**[a]	-1.71	**-4.17**[a]	-0.02	-0.23	-2.98	**-3.67**[a]
$NDTS_{i,t}$	0.00	**1.92**[c]	0.00	0.48	0.01	**2.16**[b]	0.00	-0.35	0.00	0.40	0.00	-0.03	0.00	**8.30**[a]	0.00	0.17	0.00	**-2.02**[b]	0.02	**2.26**[b]
$SIZE_{i,t}$	0.07	**8.38**[a]	0.05	**6.87**[a]	0.10	**24.77**[a]	0.04	**3.98**[a]	0.09	**14.85**[a]	0.06	**3.41**[a]	0.06	**8.86**[a]	0.09	**24.18**[a]	0.07	**7.97**[a]	0.03	**2.04**[b]
$CVA_{i,t}$	0.15	**2.84**[a]	0.26	**5.50**[a]	0.22	**5.23**[a]	0.20	**3.33**[a]	0.18	**5.27**[a]	-0.04	-0.47	0.44	**10.57**[a]	0.48	**7.30**[a]	0.15	**3.50**[a]	0.21	**2.14**[b]
$AGE_{i,t}$	-0.06	**-4.66**[a]	-0.02	-1.51	0.08	**3.92**[a]	0.05	**3.32**[a]	-0.01	-0.62	0.02	0.65	-0.06	**-7.40**[a]	0.03	1.40	0.02	**2.08**[b]	0.05	1.37
$PROF_{i,t}$	-0.07	**-2.81**[a]	-0.26	**-2.29**[b]	-2.89	**-8.90**[a]	-0.07	**-1.74**[c]	-0.34	**-3.54**[a]	-0.04	-0.51	-1.24	**-9.47**[a]	-1.18	**-3.13**[a]	-0.06	-1.53	-0.32	-0.86
$DIVC_{i,t}$	-0.07	**-2.03**[b]	0.18	**5.04**[a]	-0.04	-1.19	-0.07	-1.39	-0.24	**-8.43**[a]	-0.14	**-2.33**[a]	0.07	**2.90**[a]	-0.06	**-2.29**[b]	0.02	0.59	-0.44	**-5.06**[a]
$FCF_{i,t}$	-0.04	**-2.01**[b]	0.00	1.24	0.71	**4.83**[a]	-0.02	-1.45	0.00	1.14	-0.17	**-3.46**[a]	0.00	**11.44**[a]	0.01	**6.34**[a]	-0.01	-0.97	-0.24	**-3.33**[a]
$GROW\_MB_{i,t}$	-0.02	**-2.49**[a]	0.00	**-2.97**[a]	0.00	-0.41	0.00	**2.69**[a]	0.00	**2.34**[a]	0.00	**-1.70**[c]	0	0.54	0.07	**1.85**[c]	0	0.81	-0.02	**-1.76**[c]
YR_95	-0.05	-0.69	-0.16	**-3.62**[a]	0.07	1.39	0.07	1.41	-0.07	**-1.87**[c]	-0.01	-0.23	-0.04	-1.13	-0.02	-0.57	-0.01	-0.30	-0.10	-1.10
YR_96	-0.06	-1.37	-0.06	-1.45	0.00	0.06	0.10	**1.81**[c]	-0.04	-1.04	-0.02	-0.42	-0.03	-0.89	0.03	0.84	-0.06	**-1.89**[c]	-0.04	-0.4
YR_97	0.01	0.12	-0.07	**-1.66**[c]	0.11	**2.34**[a]	0.1	**1.88**[c]	0.19	**4.34**[a]	0.01	0.16	-0.02	-0.66	-0.02	-0.92	-0.07	**-2.10**[b]	0.06	0.72
YR_98																				
YR_99																				
YR_00	0.04	0.70	0.05	0.82	-0.07	**-2.05**[b]	0.01	0.13	0.04	**1.68**[a]	-0.03	-0.74	-0.02	-0.66	-0.02	-0.92	0.01	0.35	0.00	-0.02
YR_01	0.03	0.71	0.02	0.41	-0.06	-1.57	0.05	1.05	0.07	**2.30**[a]	0.05	0.93	0.01	0.33	-0.05	-1.46	0.05	1.37	-0.02	-0.33
YR_02	0.07	**1.73**[c]	0.12	**2.66**[a]	-0.05	-1.36	0.02	0.42	0.11	**3.51**[a]	0.04	0.86	0.04	1.20	-0.01	-0.44	0.01	0.27	-0.02	-0.39
YR_03	0.09	**1.72**[c]	0.05	1.22	-0.09	**-1.94**[a]	0.03	0.36	0.02	0.79	0.01	0.13	0.1	**3.04**[a]	-0.1	**-3.10**[a]	-0.04	-1.11	0.01	0.20
YR_04	0.06	1.30	-0.04	-1.04	-0.03	-0.77	-0.01	-0.23	0.09	**2.59**[a]	-0.02	-0.41	0.05	1.51	-0.05	-1.60	-0.02	-0.63	0.00	-0.04
No. of Obs	994		1371		1093		719		1861		1254		1417		814		1469		964	
Adj R-sqr	0.34		0.29		0.54		0.21		0.21		0.41		0.36		0.55		0.25		0.40	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

4.6.3.6 Speed of Adjustments

The results in Table 4.14 attempt to investigate the speed of adjustment costs across countries and across firms following Leary and Roberts (2005) who argue that firms in general strive to maintain an optimal capital structure that balances the costs and benefits associated with varying degrees of financial leverage (Fama and French, 2002; Baker & Wurgler, 2005). The interpretation of the results will not make any attempt to find support of my empirical findings in this table since no prior literature has investigated the difference of speed of adjustment in capital structure decision across DCs and MCs. Further, there is no past literature investigating the difference of speed of adjustment across countries. However, the empirical findings here will be discussed within the context of traditional and international capital structure theories of risks and benefits of rebalancing debt levels towards targets. It is presumed that the speed or portion of debt level will be rebalanced towards target faster if the benefit outweighs the costs (e.g. bankruptcy, agency costs, tax, foreign exchange risks and political risks etc.). In the univariate and multivariate analysis we have shown that DCs' and MCs' debt level varies across countries, and speed of adjustment will be a further indication of holding higher (benefit) or lower (costs) debt holding capacity across DCs and MCs within each country and across countries to show which types of firm or country are able to internalise the debt associated costs and benefits faster.

The results in Table 4.14 suggest that Australian and Japanese MCs have a tendency of adjusting the leverage level towards target more than their DCs counterparts (0.19 and 0.27 versus 0.17 and 0.23). On the other hand, U.K. and Malaysian MCs appears to adjust their leverage level towards their target at a lower proportion than their DCs, and it is indicated by the coefficients (0.08 and 0.17 versus 0.19 and 0.26). Meanwhile, U.S. firms (both MCs and DCs) manage to rebalance their leverage level on average by 18% towards target level.

A further and yet similar testing is conducted on short-term debt across firms (DCs and MCs) and countries to investigate whether there is any evidence that DC and MCs across countries have a tendency of long-term debt more than short-term debt and vice versa. The results

Table 4.14
The speed of adjustments for DCs and MCs across long and short-term debt across 5 sampled countries

This table presents the speed of adjustment costs across DCs and MCs for long-term and short-term debt ratios. Panel A presents the test results of speed of adjustment costs for long-term debt while Panel B presents short-term debt ratios speed of adjustment costs across five sample countries. The following model is utilised:

$$LEVERAGE_{i,t} - LEVERAGE_{i,t-1} = \gamma_0 + \gamma_1(LEVERAGE_{i,t}^{*} - LEVERAGE_{i,t-1}) + e_{i,t}$$

Panel A	DCs												MCs											
	AU		US		JP		UK		ML		ALL		AU		US		JP		UK		ML		ALL	
Variable	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	0.00	-0.29	-0.01	-1.37	-0.02	-3.39	0.00	0.18	0.02	3.96	0.01	2.11	-0.01	-0.56	-0.01	-1.98	-0.02	-3.74	0.01	1.97	0.02	1.88	0.00	-1.53
Speed	0.17	**1.93**[a]	0.18	**10.08**[a]	0.23	**7.02**[a]	0.19	**3.68**[a]	0.26	**11.99**[a]	0.19	**15.65**[a]	0.19	1.61	0.18	**10.69**[a]	0.27	**7.98**[a]	0.08	**2.63**[a]	0.17	**4.50**[a]	0.15	**12.23**[a]
No. of Obs	994		1371		1093		719		1861		1254		1417		814		1469		964		994		1371	
Adj R-sqr	0.08		0.12		0.18		0.08		0.10		0.09		0.10		0.13		0.20		0.02		0.08		0.09	

Panel B	DCs												MCs											
	AU		US		JP		UK		ML		ALL		AU		US		JP		UK		ML		ALL	
Variable	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	-0.01	-2.12	0.00	-1.68	0.00	-3.35	0.00	-1.42	0.00	-1.86	0.00	-3.28	0.00	-1.48	0.00	-4.26	-0.01	-5.30	0.00	-3.37	-0.01	-1.33	0.00	-5.90
Speed	0.59	**8.13**[a]	0.24	**3.74**[a]	0.10	**4.09**[a]	0.38	**4.87**[a]	0.34	**9.95**[a]	0.25	**11.95**[a]	0.68	**6.12**[a]	0.31	**9.76**[a]	0.08	**4.78**[a]	0.39	**9.51**[a]	0.26	**5.38**[a]	0.23	**10.49**[a]
No. of Obs	994		1371		1093		719		1861		1254		1417		814		1469		964		994		1371	
Adj R-sqr	0.40		0.14		0.08		0.19		0.20		0.13		0.39		0.18		0.05		0.21		0.14		0.13	

a, b and c denote a significant difference at the 1%, 5% and 10% level, respectively.

indicate that Australian, U.S. and U.K. MCs have a tendency of adjusting the target short-term debt ratios in a relatively faster than DCs (0.68, 0.31 and 0.39 versus 0.59, 0.24 and 0.38). Also, Panel A and Panel B in Table 4.14 show that DCs and MCs in Australia, U.S., U.K. and Malaysia adjust their short-term debt relativelty more faster than their long-term debt. In contrast, Japan is an exception in a sense that the DCs and MCs in Japan has tendency of adjusting long-term faster than short-term debt.

4.7 SUMMARY AND CONCLUSION

Chapter 4 is an extension of Chapter 3 and this study uses a unique data set to assess whether capital structure theory is portable across countries with different institutional characteristics. Therefore, this study investigates the capital structure and the determinants of capital structure of 6038 DCs and 5918 MCs across Australia, U.S., Japan, U.K. and Malaysia. These countries are characterised by different financial systems and traditions which may have impact on capital structure decisions. Both cross-sectional and time variations in capital structure are explored. Eight major focal points have been explored. Firstly, the determinants of long-term debt ratios between DCs and MCs differ across the sample countries. Foreign exchange risk, size and collateral value of assets are the only factors that are consistently significant across the sample countries' DCs. To the contrary, no consistent profound factor(s) is observed in MCs' long-term debt ratios determination across the sample countries. Diversification plays an important role in explaining short-term debt ratios between DCs and MCs across all sample countries. Secondly, the results show that MCs hold significantly less debt than DCs in the U.S. while Malaysian MCs hold significantly higher debt than the DCs counterparts. Thirdly, country effects show that DCs and MCs in all sample countries hold significant positive relationship with short-term debt. However, Australia, Japan U.K. and Malaysia hold significantly less long-term debt relative to U.S. firms. Fourthly, firms that belong to the imputation tax system (mainly Australia and U.K.) hold significantly less short-term and long-term debt as opposed to firm classical tax system. Fifthly, firms that follow common law have significantly less short-term debt and significantly higher long-term debt than the DCs and MCs in civil law countries.

Sixthly, when industry effects are considered, the results show that they are not consistent across DCs and MCs; however, industry affect across countries support the hypothesis that industry effect is significant and varies across countries. Seventhly, both time variation and the determination of capital structure vary across DCs and MCs. Finally, the speed of adjustment confirms that Australian and Japanese MCs adjust their long-term debt ratios towards their target level faster than their DCs counterparts, while U.K. and Malaysian MCs exhibit the opposite. Furthermore, Australian, U.S. and U.K. MCs adjust their short-term debt ratios towards their target level relatively quicker than DCs counterparts. Table 4.15 presents the summary of hypotheses and results of this chapter.

Table 4.15
Summary of Hypotheses and Results

Hypothesis	Description	Proxy	Expected Sign	Rejected H_0 (Supporting H_1)
1	*$H1_0$: There is no significant difference between MCs' and DCs' debt ratios in Australia.*	***Univariate Test***	+/-	H_0 is rejected in US, Japan, UK and Malaysia. It suggests that MCs in US, Japan and UK's have significantly higher debt ratios than DCs while the opposite holds for Malaysian MCs. (Table 4.5)
	$H1_1$: There is a significant difference between MCs' and DCs' debt ratios in Australia.			
2	*$H2_0$: There is no significant relationship between MCs' level of multinationality and debt ratios.*	$MULT_{i,t}$	+/-	Multivariate test further confirms the univariate test for US and Malaysia. H_0 is rejected for MCs in US and Malaysia. (Table 4.8)
	$H2_1$: There is a significant relationship between MCs' level of multinationality and debt ratios.			
3A	*$H3A_0$: There is no significant relationship between the level of diversification and debt ratios for DCs' and MCs.*	$DIVER_{i,t}$	+/-	H_0 is rejected for DCs in Malaysia; and MCs in Australia and US. It suggest that diversification significantly reduces their debt ratios. (Table 4.7)
	$H3A_1$: There is significant relationship between the level of diversification and debt ratios for DCs' and MCs.			
3B	*$H3B_0$: There is no significant difference between the level of diversification and MCs' debt ratios.*	$M\_DIVER_{i,t}$	+/-	H_0 is rejected in Australia, US and Malaysia. It suggests that MCs that belongs to the these three countries, diversification costs outweighs the benefits associated in raising debt and therefore MCs will have less debt ratios. (Table 4.9)
	$H3B_1$: There is significant difference between the level of diversification and MCs' debt ratios.			
4A	*$H4A_0$: There is no significant relationship between the level of foreign exchange risk and debt ratios for DCs' and MCs.*	$FX_{i,t}$	+/-	H_0 is rejected in all five sample countries. This suggests that foreign exchange risks act as a hedging tool that assists in minimising the risk associated through external borrowing. Foreign exchange risk favours UK and Malaysian MCs while it disfavours MCs in Australian, US and Japan. (Table
	$H4A_1$: There is a significant relationship between the level of foreign exchange risk and debt ratios for DCs' and MCs.			

				4.7)
4B	*$H4B_0$: There is no significant difference between the level of foreign exchange risk and MCs' debt ratios.* *$H4B_1$: There is significant difference between the level of foreign exchange risk and MCs' debt ratios.*	$M\_FX_{i,t}$	+/-	H_0 is rejected in Japan. It suggests that Japanese MCs foreign exchange risk exposure works as a better hedging too that outweighs the benefits associated in raising debt than the DCs. (Table 4.9)
5A	*$H5A_0$: There is no significant relationship between the level of political risk and debt ratios for DCs' and MCs.* *$H5A_1$: There is a significant relationship between the level of political risk and debt ratios for DCs' and MCs.*	$PR_{i,t}$	+/-	H_0 is rejected for MCs in UK. It shows that political risk factor acts in favour for UK MCs to increase debt ratios. (Table 4.7)
5B	*$H5B_0$: There is no significant difference between the level of political risk and MCs' debt ratios.* *$H5B_1$: There is significant difference between the level of political risk and MCs' debt ratios.*	$M\_PR_{i,t}$	+/-	H_0 is rejected in Japan, UK and Malaysia. This suggests that political risk assists in increasing external borrowing for MCs in Japan, UK and Malaysia than their DCs. (Table 4.9)
6A	*$H6A_0$: There is no significant relationship between the level of bankruptcy risk and debt ratios for DCs' and MCs.* *$H6A_1$: There is a significant relationship between the level of bankruptcy risk and debt ratios for DCs' and MCs.*	$BPTCY_{i,t}$	-	H_0 is rejected for DCs in UK and Malaysia and also MCs in Malaysia. (Table 4.7)
6B	*$H6B_0$: There is no significant difference between the level of foreign exchange risk and MCs' debt ratios.* *$H5B_1$: There is significant difference between the level of foreign exchange risk and MCs' debt ratios.*	$M\_ BPTCY_{i,t}$	-	H_0 is rejected in Japan and Malaysia. This suggest that MCs in Japan and Malaysia have higher magnitude of negative bankruptcy risk which decreases the leverage ratio relative to DCs. (Table 4.9)
7A	*$H7A_0$: There is no significant relationship between the level of firm's beta risk and debt ratios for DCs' and MCs.* *$H7A_1$: There is a significant relationship between the level of firm's beta risk and debt ratios for DCs' and MCs.*	$BETA_{i,t}$	-	H_0 is rejected for DCs in US and Japan and MCs across all sample countries. This suggest that as firm risk increases, it significantly decreases firms debt ratios. (Table 4.7)
7B	*$H7B_0$: There is no significant difference between the level of firm's beta risk and MCs' debt ratios.* *$H7B_1$: There is significant difference between the level of firm's beta risk and MCs' debt ratios.*	$M\_BETA_{i,t}$	-	H_0 is rejected for Malaysia only. This suggest that as firm risk for Malaysian MCs is significantly different from DCs which enables MCs to hold higher debt than DCs. (Table 4.9)
8A	*$H8A_0$: There is no significant relationship between the level of firm's average tax and debt ratios for DCs' and MCs.* *$H8A_1$: There is a significant relationship between the level of firm's average tax and debt ratios for DCs' and MCs.*	$ATR_{i,t}$	+	H_0 is rejected for all sample countries DCs except Malaysia and for MCs in US, Japan and Malaysia. (Table 4.7)
8B	*$H8B_0$: There is no significant difference between the level of firm's average tax and MCs' debt ratios.*	$M\_ATR_{i,t}$	+/-	H_0 is rejected in favour of the H_1 for all sample countries except Malaysia. This suggests that MCs

	$H8B_1$: There is significant difference between the level of firm's average tax and MCs' debt ratios.			in US, Japan, UK and Malaysia experience a significantly different average tax ratio and it assists them to increase UK MCs' debt ratios but disfavours US, Japan and Malaysian MCs. (Table 4.9)
9A	*$H9A_0$: There is no significant relationship between the level of non debt tax shield and debt ratios for DCs' and MCs.* *$H9A_1$: There is a significant relationship between the level of non debt tax shield and debt ratios for DCs' and MCs.*	$\boldsymbol{NDTS_{i,t}}$	-	H_0 is rejected in favour of the H_1 in explaining DCs' debt ratios in Australia and Japan while MCs' debt ratios in US and UK. This suggests that non debt tax shield significantly assist in increasing long term debt ratios for above DCs and MCs accept MCs in UK. (Table 4.7)
9B	*$H9B_0$: There is no significant difference between the level of non debt tax shield and MCs' debt ratios.* *$H9B_1$: There is significant difference between the level of non debt tax shield and MCs' debt ratios.*	$\boldsymbol{M\_NDTS_{i,t}}$	-/+	Reject H_0 for Japan and Malaysia because a significant difference is observed between DCs' and MCs' non debt tax shield in explaining debt ratios. (Table 4.9)
10A	*$H10A_0$: There is no significant relationship between the level of size and debt ratios for DCs' and MCs.* *$H10A_1$: There is a significant relationship between the level of size and debt ratios for DCs' and MCs.*	$\boldsymbol{SIZE_{i,t}}$	+	H_0 is rejected in favour of the H_1 in explaining DCs' and MCs' debt ratios across all sample countries. This suggests DCs' and MCs' size of their total assets assists to increase their debt ratios. (Table 4.7)
10B	*$H10B_0$: There is no significant difference between the level of size and MCs' debt ratios.* *$H10B_1$: There is significant difference between the level of size and MCs' debt ratios.*	$\boldsymbol{M\_SIZE_{i,t}}$	+	Reject H_0 because there is a significant difference exist between DCs' and MCs' total assets in explaining total debt ratios in Japan, UK and Malaysia. (Table 4.9)
11A	*$H11A_0$: There is no significant relationship between the level of collateral value of assets and debt ratios for DCs' and MCs.* *$H11A_1$: There is a significant relationship between the level of collateral value of assets and debt ratios for DCs' and MCs.*	$\boldsymbol{CVA_{i,t}}$	+	H_0 is rejected in favour of the H_1 in explaining DCs' debt ratios in all sample countries DCs and MCs (except MCs in Malaysia). (Table 4.7)
11B	*$H11B_0$: There is no significant difference between the level of collateral value of assets and MCs' debt ratios.* *$H11B_1$: There is significant difference between the level of firm's collateral value of assets and MCs' debt ratios.*	$\boldsymbol{M\_CVA_{i,t}}$	+	Reject H_0 for US and Japan because there is a significant difference exist between DCs and MCs collateral value of assets in explaining debt ratios. (Table 4.9)
12A	*$H12A_0$: There is no significant relationship between the level of age and debt ratios for DCs' and MCs.* *$H12A_1$: There is a significant relationship between the level of age and debt ratios for DCs' and MCs.*	$\boldsymbol{AGE_{i,t}}$	+/-	H_0 is rejected in favour of the H_1 in explaining DCs' debt ratios in Australia, Japan and UK. Also, MCs debt ratios in US and UK. (Table 4.7)
12B	*$H12B_0$: There is no significant difference between the level age and MCs' debt ratios.* *$H12B_1$: There is significant difference between the level of age and MCs' debt ratios.*	$\boldsymbol{M\_AGE_{i,t}}$	+	Reject H_0 because there is a significant difference exist between DCs and MCs firm maturity or age in explaining debt ratios in Australia, US and Japan. (Table 4.9)

13A	*$H13A_0$: There is no significant relationship between the level of profitability and debt ratios for DCs' and MCs.* *$H13A_1$: There is a significant relationship between the level of profitability and debt ratios for DCs' and MCs.*	***$PROF_{i,t}$***	+/-	H_0 is rejected in favour of the H_1 in explaining DCs' debt ratios in Australia, US, Japan and Malaysia and MCs in US, Japan and UK. This suggests that as the profitability increases, it significantly reduces their debt ratios as they finance it through internally generated funds. (Table 4.7)
13B	*$H13B_0$: There is no significant difference between the level of profitability and MCs' debt ratios.* *$H13B_1$: There is significant difference between the level of profitability and MCs' debt ratios.*	***$M\_PROF_{i,t}$***	+/-	Fails to reject H_0 because there is no significant difference is observed between DCs and MCs profitability factor in explaining debt ratios in US and Japan. (Table 4.9)
14A	*$H14A_0$: There is no significant relationship between the level of cash dividend and debt ratios for DCs' and MCs.* *$H14A_1$: There is a significant relationship between the level of cash dividend and debt ratios for DCs' and MCs.*	***$DIVC_{i,t}$***	-	H_0 is rejected in favour of the H_1 in explaining both DCs (in Australia and US) and MCs (in Australia, US and Japan) debt ratios. This suggests that as the cash dividend payment increase, it significantly reduces their debt ratios as the dividend payments impose a constraint on the availability of cash. (Table 4.7)
14B	*$H14B_0$: There is no significant difference between the level of cash dividend and MCs' debt ratios.* *$H14B_1$: There is significant difference between the level of cash dividend and MCs' debt ratios.*	***$M\_DIVC_{i,t}$***	+	Reject H_0 because significant difference is observed between DCs and MCs cash dividend payout ratios in explaining debt ratios for US and Malaysia. (Table 4.9)
15A	*$H15A_0$: There is no significant relationship between the level of free cash flow and debt ratios for DCs' and MCs.* *$H15A_1$: There is a significant relationship between the level of free cash flow and debt ratios for DCs' and MCs.*	***$FCF_{i,t}$***	+	H_0 is rejected for DCs in Australia and Japan. H_0 is rejected for MCs in the Australia, US and Japan. This suggests that FCF increases the agency costs and therefore has a significant negative relationship with debt ratio. (Table 4.7)
15B	*$H15B_0$: There is no significant difference between the level of free cash flow and MCs' debt ratios.* *$H15B_1$: There is significant difference between the level of free cash flow and MCs' debt ratios.*	***$M\_FCF_{,t}$***	+	Reject H_0 across for Australia, Japan and Malaysia. This result is consistent with the expected outcome mentioned in the hypothesis. (Table 4.9)
16A	*$H16A_0$: There is no significant relationship between the level of free cash flow and debt ratios for DCs' and MCs.* *$H16A_1$: There is a significant relationship between the level of free cash flow and debt ratios for DCs' and MCs.*	***$GROW\_MB_{i,t}$***	-	H_0 is rejected in favour of the H_1 in explaining DCs' (in Australia, US, UK) and MCs' (Australia and Japan) debt ratios. This suggests that an increase in growth reduces the debt ratios and it is consistent with the theory that when firms in growth mode, firms become volatile and therefore less debt is raised. (Table 4.7)
16B	*$H16B_0$: There is no significant difference between the level of free cash flow and MCs' debt ratios.* *$H16B_1$: There is significant difference between the level of free cash flow and MCs' debt ratios.*	***$M\_GROW\_MB_{i,t}$***	+/-	Reject H_0 because there is significant difference is observed between DCs and MCs growth factor in explaining MCs' debt ratios. This exists in Australia, Japan and Malaysia. (Table 4.9)
17A	*$H17A_0$: There is no significant country*	***COUNTRY_Sa***		Rejected H_0 as the result indicates

	effect on debt ratios. $H17A_1$ *: There is significant country effect on debt ratios.*	***mple country?$_{i,t}$***		that country effect exists in explaining debt ratios. (Table 4.10)
17B	$H17B_0$ *: There is no significant difference among the explanatory variables of debt ratios across countries.* $H17B_1$ *: : There is significant difference among the explanatory variables of debt ratios across countries.*	***Variables$_{i,t}$_CO UNTRY***		Rejected H_0 for both DCs and MCs suggesting that there is a significant difference among the explanatory variables of DCs and MCs. (Table 4.11)
17C	$H17C_0$ *: There is no significant relationship between Common Law Regime and Civil law Regime in explaining firms' debt ratios* $H17C_0$ *: There is significant relationship between Common Law Regime and Civil law Regime in explaining firms' debt ratios*	***COMMON_LA W$_{i,t}$***		Rejected H_0 as the result indicates that countries operating in common law regime have significant negative impact on short term debt and significant positive impact on long term debt. (Table 4.10)
17D	$H17D_0$ *: There is no significant relationship between Imputation Tax System and Classical Tax System in explaining firms' debt ratios* $H17D_1$ *: There is significant relationship between Imputation Tax System and Classical Tax System in explaining firms' debt ratios*	***IMPUTATION _TAX$_{i,t}$***		Rejected H_0 in favour of the alternative. Results suggests that firms operating under imputation tax system holds significantly less short term debt and long term debt. (Table 4.10)
18	$H18A_0$ *: There is no significant industry effect on debt ratios for DCs and MCs.* $H18A_1$ *: There is a significant industry effect on debt ratios for DCs and MCs.*	***IND$_{,t}$***	+/-	Mixed results across countries and across DCs and MCs. (Table 4.12)
19A	$H19A_0$ *: There is no significant time effect on debt ratios for DCs and MCs.* $H19A_1$ *: There is significant time effect on debt ratios for DCs and MCs.*	***Yr$_{,t}$***	+/-	Mixed results across countries and across DCs and MCs. (Table 4.13)
19B	$H20B_0$ *: Debt ratio determinants do not have certain year effect for DCs and MCs.* $H20B_1$ *: Debt ratio determinants do have certain year effect.*	***Yr$_{,t}$_Dummy***	+/-	Mixed results across countries and across DCs and MCs. (Table 4.13)
21A	$H21A_0$ *: There is no significant relationship between speed of adjustment and target debt ratios for DCs and MCs.* $H21A_1$ *: There is significant relationship between speed of adjustment and target debt ratios for DCs and MCs.*	***Litner's 1956 Model***	+/-	Rejected H_0 and suggest that Litner's 1956 shows a significant relationship between debt ratios and speed of adjustment. (Table 4.14)
21B	$H21B_0$ *: There is no significant variation in speed of adjustment and debt ratios between DCs and MCs.* $H21B_1$ *: There is significant variation in speed of adjustment and debt ratios between DCs and MCs.*	***Litner's 1956 Model***	+/-	Rejected H_0 and conclude that Australian and Japanese MCs adjust their long term debt ratios towards their target level faster than their DCs counterparts, while UK and Malaysian DCs exhibit the opposite. Further, Australian, U.S. and UK MCs adjust short term debt ratios towards their target level relatively quicker than DCs counterparts. (Table 4.14)

- 5 -
DIVIDEND POLICY OF AUSTRALIAN MCS AND DCS

5.1 INTRODUCTION

Theoretically, it is often argued that international diversification of earnings should enable multinational corporations (MCs) to maintain higher dividend payouts than domestic corporations (Hines, 1996). Corporations use cash dividends and share repurchases as the two main methods to distribute cash to shareholders. While each method has received considerable attention in the academic literature, fewer studies have examined the determinants of cash dividends and cash dividends and share repurchases within the multinational corporations framework. In particular, little is known about what factors determine the choice between cash dividends and cash dividends and share repurchases across MCs and DCs and what, if any, information investors infer from these decisions.

Factors that have been identified as determinants of dividend policy could differ substantially in both domestic and multinational corporations. In a world where there is uniform taxation, fixed and stable exchange rates, perfect capital markets, and no barriers to the transfer of capital, then the financial decision for MCs should be the same as those for DCs. In such a situation, funds would be raised and distributed by the cheapest sources and flow to wherever they are needed. Such a world does not exist in practice. Given MCs operate in more than one country, financial manager of MCs' should be aware of the impact of different tax structure, legal structure, changing exchange rates, barriers to capital inflows and segmented capital markets on dividend payments (Vinso, 1982). Thus the MCs' manager should be concerned about the availability of profit and factors that influence the distribution of profit as a dividend to the shareholders.

Secondly, managers express a strong desire to avoid dividends cuts, except in extraordinary circumstances. However, beyond maintaining the level of dividends per share, payout policy is a second-order concern; that is, increases in dividends are considered only after investment and liquidity needs are met (Brav et al., 2005). In contrast to Lintner (1956), they find that the target payout ratios is no longer the pre-eminent decision variable affecting payout decisions because of the recent development of share repurchase types of dividend payments across corporations and their growing importance over the last two decades. Given the dividend payout ratios has become a growing concern in the last decades, especially in the U.S., and given Australia closely follows U.S. in many aspect of financial markets and no research has been conducted in Australia, it demands an investigation to test the determining factors for both cash and cash and share repurchase in Australia.

Share repurchases were virtually nonexistent when Lintner (1956) and Modigliani and Miller's (1961) conducted their research, so it is not surprising that these authors ignore repurchases. Consistent with Modigliani and Miller's irrelevance theorem, and in contrast to decisions about preserving the level of the dividend, Brav et al. (2005) find that managers make repurchases decisions after investment decisions. Many executives view share repurchases as being more flexible than dividends, and they use this flexibility in an attempt to time the market by accelerating repurchases when they believe their stock price is low. Companies are likely to repurchase when good investments are hard to find, when their stock's float is adequate, and when they wish to offset option dilution.

While some evidence exists that share repurchases are used to reduce excess cash holdings (consistent with Jensen's (1986) free cash flow hypothesis), Brav et al. (2005) do not find evidence that managers use payout policy to attract a particular investor clientele that could monitor their actions (Allen et al. 2000). Executives believe that dividends are attractive to individual investors but that cash dividends and share repurchases are equally attractive to institutions. In general, most executives say that they do not use payout policy as a tool in an attempt to alter the proportion of institutions among other investors.

We could argue that if we just look at the sources and uses of funds identity, share repurchases and cash dividends should be a substitute payout method, holding all other things constant. However, firms can always adjust their sources of funds, and therefore it is possible that dividends and share repurchases are determined independently. For example it is possible that dividends are determined together with investment, as Miller and Rock (1985) suggest, and that repurchases are determined independently. In summary, current theories do not provide a unique prediction on what the relation should be between dividends and share repurchases and therefore the determinants. It is clear that the question of the extent to which dividends and repurchases are substitute and their determinants and multinationality in Australia are the central issues, which have important implications for many of the existing theories.

The above discussion us an inspiration to investigate the determinants of cash dividends and share repurchase within the frame work of DCs and MCs as this issue has never been considered before. The above issues will be addressed by considering the factors that determine both cash dividends (a narrow definition of dividend) and cash and share repurchase (a broader definition of dividend) for MCs and DCs which includes firm-specific and international factors.

This chapter investigates the above issues in a sample of Australian multinational and domestic corporations by incorporating the suggested determinants in the prior dividend policy literature and multinational theory. In considering dividend payout ratios we adopt two definitions – cash dividends and total dividends. The cash dividend payout ratios consists of cash dividends to net earnings while total dividend payout ratios consists of both cash dividends and share repurchases to net earnings. The determining factors found to be important for DCs are diversification, stock return, tax clientele, cash flow variation, profitability, company-specific risks, firm size and financial slack. The determining factors to explain MCs' dividend payout ratios are tax clientele, profitability, collateral value of assets and leverage. Further, the common factors that explain the difference between DCs' and MCs' dividend payout ratios vary between cash dividend payments and cash and share repurchase payments. In explaining cash dividend payout ratios, diversification, profitability, firm-specific risk, size, collateral value of assets and financial risks are the explanatory factors, while for tax clientele, cash flow variability and financial slack explain the difference of cash and share repurchase payout ratios between DCs. Industry and time factors are considered and it shows that the only industry that has any significant relationship with dividend payout ratios is the transportation and communication industry, while time effect shows that on average dividend payout for Australia decreased over time.

The rest of the paper proceeds as follows: section 5.2 describes the sample and presents summary statistics. Section 5.3 explains the theories of dividend payout. Section 5.4 discusses industry and time issues affecting dividend payout ratio. Section 5.5 presents data and models descriptions. Section 5.6 discusses the findings of the regression results and the last section 5.7 concludes the chapter.

5.2 IMPORTANCE OF MULTINATIONALITY AND DIVIDEND PAYOUTS

5.2.1 Uniqueness of Operational Activities

Holding all other things constant, MCs' operational risks are deemed to be different from DCs' as they operate in an international environment. One can argue that foreign exchange risk and political risk of the MCs' subsidiaries may lead the total business risk to be higher (Burgman, 1996). For example, MCs are exposed to additional risk including political risk and foreign exchange risk, which would not exist in a domestic market (Bae and Noh, 2001). Monitoring, bonding and auditing costs are agency-related and are higher for MCs because of the diversity of geographical locations, cultural differences, higher auditing costs, differing legal systems, and language differences. Additionally, these national differences increase the complexity of such standard tasks as generating multi-country financial statements, hiring multi-country auditors and/or multiple auditors, and completing consolidated balance and income statements (Burgman, 1996; Reeb, Sattar & Allee, 1998) and there are complexities of their operations as compared to DCs. According to Wright, Madura and Wiant (1997), these costs are due to the distance and the difference in the corporate and national culture between the parent and the subsidiaries as well as the difference in the level of economic development between the parent and the subsidiary host countries. Hence, these characteristics of MCs may limit the amount of dividend that MCs can pay out to shareholders. On the other hand, Michel and Shaked (1986) evaluate the differences in financial characteristics and performance between MCs and DCs. Their results show that while DCs have superior risk-adjusted, market-based performance to MCs, MCs are more capitalized and less riskier than DCs; the average standard deviation of stock returns and the average systematic risk (beta) of DCs are significantly higher than those of MCs. Hines (1996) argues that in the 1980s U.S. corporations paid dividends at very high rates out of their after-tax profits, and that an unusually high fraction of those profits came from foreign profits (non-U.S.) sources. Further, Hines (1996) argued that multinationals pay higher dividends than domestic counterparts and their findings suggest MCs pays 3 times higher than DCs. So, the risk and the benefit of diversification may have more of an impact on MCs' dividend policy than their domestic counterparts.

5.2.2 Different Tax Regime

MCs operate in multiple countries which means its income is earned in different types of tax environment. For example, imputation tax system encourages companies to pay more dividends to the shareholders since it is less taxable than the capital gains. As for MCs, if they are paying higher tax for their earnings in overseas countries then paying dividends out of profit might be costly. Therefore, MCs will pay fewer dividends. However, alternatively, it can also be argued that if subsidiaries pay less tax from the profit they make overseas which makes them far more in a better position to pay dividends, an MC will have a higher dividend policy.

A dividend imputation system allows corporate taxes paid by companies to be allocated to shareholders by way of imputation credits. These credits are included in the taxable income of eligible shareholders who are then entitled to a tax rebate equal to the tax credit included in their income. This effectively eliminates corporate tax and means that taxes are really only levied at the personal level. While corporations face the same statutory tax rate they can have different effective tax rates and levels of franking. This arise because (a) depreciation expenses and investment allowances are tax deductible, and (b) any foreign income on which corporate tax has been paid in the foreign country is not part of the imputation system.

The Australian system is close to being a fully integrated system for domestic (resident) shareholders. In particular, the existence of a mixture of investors who face different tax regimes contributes to the system not being fully integrated. Imputation tax credits are confined to dividends paid by resident companies (from that have domestic corporate tax attached) directly or indirectly to resident individuals. Foreign and tax-exempt investors are excluded from the system. For foreign investors the Australian tax system is a classical tax system whereby corporate tax levied in addition to any personal taxes. Although tax-induced clienteles may be identified, these preferences do not necessarily produce any predictable variations in dividend policies across firms. The tax trade-off associated with receiving investment returns in the form of dividends and capital gains depends on the investor's tax rate. Although firms may seek to target clientele, matching their dividend policy to the clientele's preferences. Other firms may seek to attract another clientele. Therefore, it would be expected that differences in dividend policies would be driven by factors other than taxes (Bishop et al., 2004).

Multinational companies based in Australia that source the majority of their equity from abroad and have major shareholders, as non-residents, of which there may only be a small number, will not be as affected by the current imputation system. Any bias of the nature discussed above will generally affect smaller businesses that wish to expand, or continue expanding, into international markets. These firms are forced to source all their funds domestically and therefore require a higher pre-tax return on their investment in order to raise the necessary amount of capital. The introduction of the imputation system in Australia has largely helped to develop and maintain one of the highest share ownership rates in the world.[42] To that end the system has largely been successful.

[42] http://www.acci.asn.au/text_files/issues_papers/Economy/EY27.pdf

Returns to shareholders derived from foreign source income are, however, currently subject to double taxation. This double taxation of shareholder income in turn affects the cost of capital paid by firms. The lack of credits for foreign company tax paid to shareholders produces a situation where the pre-tax return for foreign investments must be higher than domestic investments in order to attract investors. In essence, the imputation system has led to a preference towards investing in firms with domestic income only, rather than in firms that earn both international and domestic income. There therefore exists at the shareholder level a bias towards domestic firms.

5.2.3 Easier Capital Market Access

MCs are relatively in a better position to get access to international capital markets to raise debt than the DCs due to their international operation. This means that in a bad economic year in the home country, MCs can borrow money overseas at a favourable rate to maintain the dividend policy with the shareholders, which indicates MCs should have higher dividends than DCs (Hines Jr., 1996).

5.3 THE DETERMINANTS OF DIVIDEND POLICY

For nearly four decades, researchers have been grappling with the "dividend puzzle" to understand the determinants of dividend policy. Most studies focus on U.S. firms. We expand the investigation by studying dividend policy for Australia where the taxation system is so different from the U.S. and also the advancement of the capital market and the economy advancement are comparatively different. We measure the relationship between dividend payouts and 18 different international and firm-specific variables. We also investigate industry and timing differences.

5.3.1 Multinationality

Michael and Shaked (1986) evaluate the differences in financial characteristics and performance between MCs and DCs. Hines (1996) argues that in the 1980s U.S. corporations paid dividends at very high rates out of their after-tax profits, and that an unusually high fraction of those profits came from foreign profits (non-U.S.) sources. Multinationality of a firm is comprised of multiple aspects of risks and benefits in operating multiple countries. There is no universal measurement to capture all these international risks and benefits for MCs and their impact on dividend payout ratios. Therefore this chapter will use a dichotomous variable to confine the impact of multinationality on dividend payout ratios.

5.3.2 Diversification

MCs generally hold more diverse business operations across countries than the DCs. These diverse operations in different countries often assist MCs to minimise operational cash flow risks and all other financial risks due to imperfections that exist across countries around the world. Therefore, intuitively, MCs should have relatively higher diversification benefits than the DCs and therefore it should enable MCs to pay higher dividend payouts relative to DCs Hines (1996). The diversification in this context indicates the breadth of firms operation in international environment. While diversification enables MCs to pay higher dividend payouts, in contrast, MCs are exposed to additional risk including political risk and foreign exchange risk, which would not impact on a domestic market to that extent (Bae and Noh, 2001). These characteristics of multinationals may limit the amount of dividend that MCs can pay out to shareholders.

5.3.3 Foreign Exchange Risk

MCs and DCs that are exposed to foreign exchange risk will affect the demand and supply of the firm's products and prices and costs for the firm (Adler & Dumas, 1984). The more sensitive the MCs are to foreign exchange rate fluctuations, the greater the chance of price fluctuations, which ultimately shocks the profit level figures and cash flows where dividends usually get distributed. The greater the fluctuations of cash flows, the more the expected cost of bankruptcy risk increases and consequently leads to generating less profit and therefore the lower the dividend payment to its shareholders.

5.3.4 Political Risk

Jodice (1985) suggest that political risk can be defined as changes in the operating conditions of a firm that arise out of a political process, either through war, insurrection, or political violence, or through changes in government policies that affect the behaviour of firms and their financial decisions. Political risk can be conceptualised as events in the national and international environments that can affect the profit level, physical assets, personnel, and operations of firms. Such adverse effects often take place through constraints on the way in which the MCs operate in foreign countries.

Kim and Mei (1994) suggest that political risk has a significant impact on firms profitability. Market volatility increases during political election and transition periods. Bailey and Chung (1995) also document that political risk can have a significant effect on firms profit level and profit distribution to its shareholders. This means that firms with significant foreign financing, foreign suppliers or customers, or other international transactions or assets are relatively exposed to adverse changes in currency controls, capital flow barriers and other laws and regulations that constitute political risk. Depending on firms earnings exposure to political risks in the domicile country and foreign countries, it will affect firms dividend payments.

5.3.5 Agency Costs

The principal agent problem is that managers may pursue their own goals at the cost of obtaining lower profits for the owners (stockholders). Consequently, agency costs are incurred by shareholders to insure that the manager acts in the best interests of shareholders who are not actively involved in the management of the firm (Jensen & Meckling, 1976, 1986; Fama, 1980; Crutchley & Hansen, 1989).

There are many ways of reducing agency costs. Dividend payments serve as one means of monitoring or bonding management performance. Greater dividend payments to shareholders may force the firm both to raise capital by selling new shares and to go to the capital market more frequently. Agency costs are reduced as a result of the increased scrutiny the capital market places on the firm (Easterbrook, 1984; Jensen, 1986).

Rozeff (1982) attempt to find an empirical relationship between agency costs and dividend policy and the findings suggests that: i) if a firm has a high percentage of insider stock ownership, it will pay a small dividend (a lower dividend payout ratio) to reduce agency costs; and ii) if a firm has a greater number of shareholders, it will pay high dividends (a higher payout ratio) to reduce agency costs. Further, it is also argued that an optimal dividend policy may exist even after tax considerations are ignored. According to this argument, increased equitable dividend payments reduce the volume of funds over which management has discretionary control; thus the costs of agency are reduced, but the transaction costs of external financing increase. Therefore, there is an optimal dividend payout which minimises the sum of these opposing costs. Lloyd, Jahera and Page (1986), Dempsey and Laber (1992), Schooley and Barney (1994), Hansen et al. (1994), Rao and White (1994), Moh'd et al. (1995), and Holder et al. (1998) support Rozeff's (1982) original findings.

As Jensen and Meckling (1976) suggest, managers can allocate resources to activities that benefit them privately, but that are not in shareholders' best interest. Easterbrook (1984) views dividend payments as a potential solution to agency conflicts. Dividend payments force managers to raise funds in the external financial markets and thus subject managers to scrutiny by outside professionals such as investment bankers, lawyers, and public accountants. Recognising the monitoring value of external financial markets, shareholders will insist that managers pay dividends. Also, Jensen (1986) points out that managers have incentive to grow their firms beyond optimal size as growth increases managers' power by increasing the resources under their control. Dividend payouts can be used to reduce discretionary cash under managers' control that could be wasted in negative NPV projects.

5.3.6 Free Cash Flows

Prudent managers working in the shareholders' best interests should invest in all profitable opportunities. Management and owner separation affords corporate managers the temptation, however, to consume or otherwise waste surplus funds. The inefficient use of funds in excess of profitable investment opportunities by management was first recognised by Berle and Means (1932). Jensen's (1986) free cash flow hypothesis updated this assertion, combining market information asymmetries with agency theory. The funds remaining after financing all positive net present value projects cause conflicts of interest between managers and shareholders. Dividend and debt interest payments decrease the free cash flow available to managers to invest in marginal net present value projects and managers' perquisite consumption (Myers, 1987, 1990).

5.3.7 Past and Future Growth

In general, the growth of a firm depends on: (i) the amount of resources retained and reinvested in the firm; and (ii) the rate of return that is earned on the retained resources. If a firm were experiencing substantial success and rapid growth, the firm would require large additions of capital. Therefore, growth firms may expect to pursue a low dividend payout policy since investments and dividends are linked through the firm's cash-flow identity.[43]

Many studies have suggested a negative relationship between the growth (investment) opportunities of a firm and its dividends. For example, Rozeff (1982) and Schooley and Barney (1994) find that dividend payout ratio is negatively related to both past growth revenues and predicted growth revenues of the firm. It is found that higher growth rates in past and future revenues require more funds to sustain growth; thus firms with more growth opportunities pay lower dividends in order to finance further growth.

[43] In general, the greater the amount of investment during the period, the smaller the dividend or the greater the new equity issued.

Using industry-level data, Smith and Watts (1992) also discover that various measures of growth opportunities are negatively related to corporate dividend policy. Meanwhile, Gaver and Gaver (1993), using firm-level data, find an inverse relationship between investment (growth) opportunity and dividend policy. Using firm-level data in the U.K., Adedeji (1998) observes a negative interaction between dividend payout and investment. La Porta et al. (2000), using firm-level data from 33 countries, also find that high-growth firms make lower dividend payouts than low-growth firms.

Using the over-investment argument, Jensen (1986) argues that if a firm has more growth options than other firms, it will have lower free cash flow and will pay lower dividends.[44] Consistent with the overinvestment argument, Lang and Litzenberger (1989), Howe et al. (1992), and Denis et al. (1994), using Tobin's Q as an indicator of a firm's growth (investment) opportunities, find a negative relationship between Tobin's Q and dividend payment. Thus, their result is consistent with the findings of previous studies, which report a negative relationship between growth opportunities and dividends.

Firms with many good investment opportunities have high cash needs, which may lead them to payout a low fraction of earnings to shareholders as dividends. If this is the case, a negative relationship is expected between investment opportunities and payouts. Alternatively, some argues that the relationship between investment opportunities and dividend is in fact positive (Brav et al., 2005). Survey evidence suggests that firms are highly reluctant to cut dividends, and increase dividends only when sustainable higher earnings are expected (Lintner, 1956; Brav et al., 2005). This argument suggests that only firms with a variety of good investment projects pay high dividends today because the cash flows earned from future projects support high dividends in the future. Given these two conflicting hypotheses on the relation between investment opportunities and dividend payments, it is left to empirical tests to determine which is indeed the more accurate.

[44] According to Jensen's (1986) argument (or over-investment hypothesis), a dividend increase by a firm with free cash flow problems will reduce the extent of over-investment, and will increase the market value of the firm. Similarly, a dividend decrease by such a firm will have the opposite result.

5.3.8 Stock Return

In the prior literature it has been documented that higher stock returns are associated with higher dividends, independently of whether income is taxed more or less heavily than capital gains (Litzenberger & Ramaswamy, 1979, 1982; Bajaj & Vijhs, 1990; Morgan & Thomas, 1998). Recently, this evidence is further documented by McManus, Gwilym & Thomas (2004). Lamont (1998) finds that stock return has a significant positive relationship with dividend payout ratios. We follow the Black and Scholes (1974) approach where they stated the effect in terms of the price of the company's shares, or in terms of the expected return on the company's shares, where return is defined as both capital gains and dividends. For example, if we believe that increasing a company's dividend will increase the price of its shares, then we can say this in either of two ways either increasing the dividend will increase the price of a company's shares or increasing the dividend will reduce the expected return on a company's shares. From MCs' point of view it remains an empirical question as to how stock return explains the dividend payout ratios for MCs.

5.3.9 Average Tax Rate

Australia operates under the imputation tax system, where dividends may have franking credits attached to them that allow shareholders to claim the tax paid at the company level as a credit against their personal income tax liability. The system effectively removes the double taxation of dividend income that occurs under the classical tax system. Companies engaging in off-market (sometimes referred to as equal access) repurchase programs in Australia have generally sought a ruling from the Tax Commissioner, the result of which has been that a proportion of the buyback price can be designated as a fully-franked dividend, and the remainder is defined as a capital amount. This structure may have tax advantages for shareholders such that they are willing to sell shares back to the company at a price that is below the market price; shareholders gain from the imputation credits attaching to the dividend component of the buyback and may also gain from capital gains tax credits. It is an empirical question to see the impact of imputation tax on the dividend policy for Australian MCs and DCs.

5.3.10 Tax Clientele

The tax clientele argument postulates that investors in low tax brackets prefer high dividend-paying stocks when compared to investors in high tax brackets. (Brennan, 1970; ; Elton & Gruber, 1970; Long, 1978; Litzenberger & Ramaswamy, 1979; DeAngelo & Masulis, 1980; among others). Early investigations of the tax clientele effect were indirect tests of the tax clientele argument and have been criticised by Miller and Scholes (1982) because of their extreme sensitivity to the definition of dividends.

Most recent studies have documented that clienteles may not depend on taxes alone. While Chaplinsky and Seyhun (1990) find that tax-deferred and tax-exempt dividend recipients accounted for half of all dividends in 1979, significant dividends were still subject to taxes. Sterk and Vandenberg (1990) find a preference for cash dividends despite the elimination of different tax rates between capital gains and dividend income in 1986. DeAngelo (1991) argues that an equilibrium consistent with dividend payout may exist even in the presence of tax systems that favour capital gains. Brennan and Thakor (1990) also present an equilibrium model where dividends exist for small distributions despite the preferential tax treatment of capital gains. In this paper, the clientele effect is tested differently by incorporating the tax status of the firm's major stockholders. Institutional investors are either tax-exempt, can defer taxes on dividend received, or pay taxes on the dividends received from another corporation. Consequently, if the tax clientele argument is valid, a positive relationship is expected between institution holdings, and dividend payout ratio.

There is no theory that has been developed in regards to how MCs should respond to tax clientele effect but it may be argued that since MCs operate in more than one tax regime, depending on the exploitation of tax advantage a positive sign will indicate that MCs' investors are better off than DCs' investors in maximising the tax advantage, and therefore would prefer high dividends.

5.3.11 Volatility of Cash Flows

Firms facing high levels of cash-flow uncertainty are likely to pay low dividends, fearing cash shortfalls in the future. In order to fund profitable future investment projects, firms with high cash-flow uncertainty will choose to hoard cash today by keeping dividends payments low. Moreover, firms with unstable cash flows may have to resort to external financing more often. In general, external funds are more expensive than internal funds, but this is yet truer for firms with high cash-flow uncertainty; these firms generally have low credit ratings, a result of a volatile cash-flow streams, and thus must pay premium interest to raise money. Firms with high cash-flow uncertainty will thus pay lower dividends because of their greater need to rely on internal funds (Pettit, 1972; Asquith & Mullins, 1983; Miller & Rock, 1985). Based on this discussion, it is expected that dividend payouts will be negatively related to cash-flow volatility. This argument echoes survey evidence by Brav et al. (2005). They report that more than two-thirds of chief financial officers of dividend-paying firms say that the stability of future cash flows is an important factor affecting dividend decisions.

5.3.12 Profitability

Fama and French (2001) document that the probability that a firm pays dividends is positively related to profitability and size and negatively related to growth. The intuition is that higher profitability and greater size imply a greater capacity to distribute cash, whereas greater growth indicates superior investment opportunities, thus a stronger incentive to retain cash. More profitable firms are expected to hold less debt, since it is easier and more cost effective to finance internally and consequently pay higher dividends. MCs have better opportunities than DCs to earn more profit mainly due to having access to more than one source of earnings and better chances to have favorable business conditions in particular countries (Kogut, 1985; Barlett & Ghoshal, 1989). Consequently, MCs being more profitable than DCs are expected to have higher dividend payout than DCs after controlling for the other variables.

5.3.13 Firm-specific Risk

It is often argued that a firm with more systematic risk (beta)[45] tends to adopt a policy of setting a relatively low payout ratio. Consistent with this argument, Rozeff (1982), Lloyd (1985), Bajaj and Vijh (1990), Schooley and Barney (1994), Dyl and Weigand (1998) and others discover an inverse relationship between dividend and security beta.

For example, Rozeff (1982) argues that, since higher beta is a reflection of the presence of higher operating and financial leverage, a firm will tend to pay lower dividend when it has a higher beta coefficient. Bajaj and Vijh (1990) argue that dividend increases are associated with increases in stock return because the percentage change in a stock price is typically much smaller than the percentage change in its dividend. Thus, the authors expect and find a decrease (increase) in security beta after a dividend increase (decrease). Dyl and Weigand (1998) also find that both the total risk and the systematic risk of a sample of dividend-initiating firms are significantly lower the year following the announcement of dividend payments. The decrease in total risk is more pronounced especially for the large firms, and the decrease in beta is more pronounced for the smaller firms.

Similar to the systematic risk, Beaver et al. (1970), Michael and Shaked (1986), Bar-Yosef and Huffman (1988), Glen et al. (1995), and others argue that the uncertainty of a firm's earnings may lead it to pay lower dividends because the existence of large fluctuations in earnings materially increase the risk of default. Further, if firm's follow a policy of dividend stabilization, firms with greater volatility in earnings will set a low payout ratio, which can be maintained even in the face of a relatively serious or prolonged decline in earnings.

5.3.14 Size

Research by Lloyd, Jahera and Page (1985) and Vogt (1994) indicates that firm size plays a role in explaining the dividend payout ratio of firms. They find that larger firms tend to be more

[45] A firm's security beta represents its level of systematic risk.

mature and thus have easier access to the capital markets, which reduces their dependence on internally-generated funding and allows for higher dividend payout ratios. It is argued that firms that are large have greater access to capital markets and they can easily able to switch between debt and equity and take advantage of lower transaction costs, which allows for more stable and possibly higher dividend payments of the firm. Hence a positive relationship is expected between the size and dividend payout ratio (Ali, Khan & Ramirez, 1993).

5.3.15 Collateral Value of Assets

Shareholders may expropriate wealth from bondholders by paying themselves dividends. Bondholders try to contain this problem through restrictions on dividend payments in the bond agreement. However, fewer restrictions are placed on the firm if debt can be collateralised as the borrower is restricted to use the funds to specific projects. Hence, a positive relationship is expected between dividend and dividend payout ratios.

5.3.16 Firm Maturity

Dividends tend to be paid by mature, established firms, plausibly reflecting a financial lifecycle in which young firms face relatively abundant investment opportunities with limited resources so that retention dominates distribution, whereas mature firms are better candidates to pay dividends because they have higher profitability and fewer attractive investment opportunities. Fama and French (2001), Grullon et. al (2002), and DeAngelo and DeAngelo (2006) all advance lifecycle explanations for dividends that rely, implicitly, on the trade-off between the advantages (e.g. flotation cost savings) and the costs of retention (e.g. agency costs of free cash flow). The trade-off between retention and distribution evolves over time as profits accumulate and investment opportunities decline, so that paying dividends becomes increasingly desirable as firms mature. The literature offers only a rough empirical idea of the characteristics that differentiate firms that pay dividends from those that do not. Most notably, Fama and French (2001) find that firms with current high profitability and low growth rates tend to pay dividends, while low profit/high growth firms tend to retain any profits.

5.3.17 Long-term Debt

There are two alternative hypotheses that predict no abnormal dividend payments after debt issue. First, the debt covenant hypothesis predicts that firms will decrease or not increase dividends after debt issues. Kalay (1982) shows that debt contracts restrict dividend payments directly and indirectly. It is found that the stockholders of leveraged firms choose to pay dividends under debt contracts.

Consistent with the debt covenant hypothesis, DeAngelo and DeAngelo (1990), Jensen et al. (1992), and Long et al. (1994) find an inverse relationship between dividends and debts. However, Denis (1990), Gupta and Rosenthal (1991), Smith and Watts (1992), Mougoue and Mukherjee (1994), and Adedeji (1998) find positive relationship between the leverages of a firm and its dividends.

The second hypothesis, the reputation hypothesis, also predicts no abnormal dividend payments after debt issues. On the basis of asymmetric information between the insiders of the firm and the outsider debt-holders, John and Nachman (1985) develop a model which shows the importance of reputation in controlling costs. They suggest that firms are willing to maintain their reputation for the following reasons: (i) although a firm may attempt to transfer wealth from shareholders to bondholders, this can occur only in one period, not in a multi-period world; (ii) the higher-rated debt (bonds of reputable firms) carry less restrictive constraints in the bond covenants on maximum payouts or minimum investment than those of lower-rated debt. Handjinicolaou and Kalay (1984) examine the reputation hypothesis, and find no evidence of wealth redistribution from bondholders to stockholders, but do find evidence in favour of the reputation argument.

Long et al. (1994) test both the debt covenant and reputation hypotheses. Using a sample of the firms' dividend payout ratios, straight debt, and convertible debt from 1964 to 1977, their findings do not support the debt covenant argument, but do support the reputation argument.

They conclude that reputation is the most plausible explanation why firms do not transfer wealth from bondholders to stockholders though dividend policy.

Firms trade-off dividend payments with fixed financial charges. A highly leveraged firm would tend to lower its dividend payout ratio because of high fixed financial commitments. On the other hand, increased indebtedness leads to increased contacts with external financing sources, which results in closer monitoring and an increased dividend payout.

5.3.18 Financial Slack

This chapter also considers examining the relationship between financial slack and dividend payout. In order to undertake profitable investments, firms may prefer to increase their financial slack rather than pay higher dividends. A high financial slack causes payout ratio to become lower, exacerbating the cash flow problems. The pecking order theory seeks to explain why management prefers to build financial. Asymmetry of information between investors and management makes external financing more difficult to obtain. Thus management prepares for future financial risks and business opportunities by accumulating internal funds whose use is not restricted. Therefore, financial slack is expected to be inversely related to dividend payout ratio.

5.4 THE DIVIDEND POLICY AND OTHER ISSUES

5.4.1 Industry

Industry-specific factors affect a firm's dividend policy (Baker & Powell, 2000). Although variation in dividend payouts among firms appear to be affected by firm-specific variables such as investment requirements and earnings variability, Lintner (1953) hypothesises that dividend policy also is influenced by an industry effect. This effect could be interpreted as common correlations with determinants of dividend payout by firms in the same industry, but Lintner suggests an effect of dividend leadership analogous to price leadership or wage leadership. Such an industry effect, if it exists, presumably stands apart from other firm-specific variables that affect payout decisions of the member firms within an industry and causes them to have varying dividend policies (Dempsey, Laber and Rozeff, 1993). Some evidence suggests that there is significant variation in dividend payout ratios among industries (Michael, 1979; Baker, 1988).

Richardson, Tuna and Wysocki (2002) confirm that industry affiliation is a strong determinant of corporate cash holdings, acquisitions, R&D and capital expenditures, leverage policy and dividend and share repurchase policy. Several studies specifically examine the potential effect of industry affiliation on dividend policies. Research by Michel (1979) and Baker (1988) among others suggests a positive relationship exists between industry classification and dividend policy.[46] Rozeff (1982) concludes, however, that a company's industry does not help to explain its dividend payout ratio. Although firms within the same industry tend to have similar dividend payouts, Rozeff attributes the apparently significant industry effect found in other studies to the fact that other variables are often similar within a given industry. His conclusion does not apply to utilities since he intentionally excluded regulated companies because their regulators' status may affect their dividend policies. Survey research by Baker, Farrelly and Edelman (1985) examine differences in determinants of dividend policy among three industry groups – manufacturing, wholesale/retail, and utilities. Their results show that the responses of the three groups differ significantly among eight of the fifteen determinants of dividend policy examined in their study. Soter, Brigham and Evanson (1996) note the economic environment for utilities has been changing over time. Due to regulators' actions, the utility industry has become a riskier place in which to operate and invest. In the current world, utilities find themselves increasingly subject to competition. For the purpose of our analysis, I exclude financial companies as these firms may have different considerations in establishing their investment and dividend policies.

[46] Rozeff (1982) concluded that a company's industry does not help to explain its dividend payment ratio. This conclusion may not apply to utilities because he intentionally excluded regulated companies from his sample.

The one and zero dummy variable will be used in the proposed models to capture the effect of industry in both domestic and multinational corporations' dividend payout policy. Further, industry dummies are included in the regression to account for differences in asset structure, accounting practices, government regulation, and competitiveness each may affect corporate governance of dividend payments and firm valuations (Durnev and Kim, 2005). Given the prior studies have been conducted in most U.S. and other European countries, it would be worthwhile to see the impact of industry in the Australian corporations context.

5.4.2 Timing

It is important to examine the effects of time-varying information and determinants on the cash dividend payout and cash dividend and share repurchases. Firstly, time series evidence of dividend policies is relatively more plausible than cross-sectional evidence as time series analysis captures the dynamic changes of dividend payout policy across time. Secondly, it would provide evidence on the robustness of the disappearing puzzle. Thirdly, it allows conducting a further test of the time dependence variable changes. For example, when investment and dividend payment is primarily financed with internal funds, worsening conditions should not have as larger an impact as when external funds account for the bulk of financing. Since this only happens in financial markets which are imperfect (i.e. if internal and external funds are not perfect substitutes), the differential impact should be stronger when financing frictions are more prevalent (Braun and Larrain, 2005). In order to capture year effect (e.g. business cycle shocks or economic downturn), a dichotomous one and zero variable will be used for each year.

5.5 DATA AND METHODOLOGY

We gather data from the Osiris database and Compustat-Global for the period of 1995 to 2004 and this is outlined in details in Chapter 2. The sample consists of 1254 Australian MCs and 994 Australian DCs.

The following three main regression models are proposed to test the determinants and multinationality effect on different measure of dividend payout ratios. For example, Model I attempts to explain the determinants of DCs and MCs independently so that a direct comparison can be made in terms of the explanatory power of each determining factors between those two types of firms. Model II attempts to isolate the multinationality effect which is believe to capture any unique factors that exist but we could not capture within the capacity of this research even after considering the factors that is believe to explain to the best (e.g. diversification, foreign exchange risk, political risks). Thirdly, Model III endeavours to distinguish the difference across the explanatory variables between DCs and MCs. The test of industry influence and time influence on dividend payment behaviour is also investigated by extending model II. The main three models are presented below:

5.5.1 Model I

$$\begin{aligned} DIVC_{i,t}^{*} = {} & \beta_0 + \beta_1 DIVER_{i,t} + \beta_2 FX_{i,t} + \beta_3 PR_{i,t} + \beta_4 AGC_{i,t} + \beta_5 FCF_{i,t} + \beta_6 GROW\_MB_{i,t} \\ & + \beta_7 GROW\_PT_{i,t} + \beta_8 SR_{i,t} + \beta_9 ATR_{i,t} + \beta_{10} TAX\_CLTL_{i,t} + \beta_{11} CFV_{i,t} + \beta_{12} PROF_{i,t} \\ & + \beta_{13} BETA_{i,t} + \beta_{14} SIZE_{i,t} + \beta_{15} CVA_{i,t} + \beta_{16} AGE_{i,t} + \beta_{17} LTD_{i,t} + \beta_{18} SLACK_{i,t} + \varepsilon_{i,t} \end{aligned}$$

Where:

*DIVC**	= Cash dividend (* represents that total dividend (comprised of cash dividend and share repurchase) also use same regression)
DIVER	= Diversification
FX	= Foreign exchange risk
PR	= Political risk
AGC	= Agency Costs
FCF	= Free cash flow
GROW_MB	= Growth for market to book value
GROW_PT	= Growth for past
SR	= Stock return
ATR	= Average tax rate
TAX_CLTL	= Tax Clientele
CFV	= Cash flow variation
PROF	= Profitability
BETA	= Firm specific risk (De-geared beta)
NDTS	= Non-debt tax shield
SIZE	= Total assets
CVA	= Collateral value of assets
AGE	= Firm's age
LTD	= Long-term debt
SLACK	= Financial Slack

5.5.2 Model II

$$
\begin{aligned}
DIVC_{i,t}^{*} = {} & \beta_0 + \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 PR_{i,t} + \beta_5 AGC_{i,t} + \beta_6 FCF_{i,t} + \beta_7 GROW\_MB_{i,t} \\
& + \beta_8 GROW\_PT_{i,t} + \beta_9 SR_{i,t} + \beta_{10} ATR_{i,t} + \beta_{11} TAX\_CLTL_{i,t} + \beta_{12} CFV_{i,t} + \beta_{13} PROF_{i,t} \\
& + \beta_{14} BETA_{i,t} + \beta_{15} SIZE_{i,t} + \beta_{16} CVA_{i,t} + \beta_{17} AGE_{i,t} + \beta_{18} LTD_{i,t} + \beta_{19} SLACK_{i,t} + \varepsilon_{i,t}
\end{aligned}
$$

5.5.3 Model III

$$
\begin{aligned}
DIVC_{i,t}^{*} = {} & \beta_0 + \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 PR_{i,t} + \beta_5 AGC_{i,t} + \beta_6 FCF_{i,t} \\
& + \beta_7 GROW\_MB_{i,t} + \beta_8 GROW\_PT_{i,t} + \beta_9 SR_{i,t} + \beta_{10} ATR_{i,t} + \beta_{11} TAX\_CLTL_{i,t} \\
& + \beta_{12} CFV_{i,t} + \beta_{13} PROF_{i,t} + \beta_{14} BETA_{i,t} + \beta_{15} SIZE_{i,t} + \beta_{16} CVA_{i,t} + \beta_{17} AGE_{i,t} + \beta_{18} LTD \\
& + \beta_{19} SLACK_{i,t} + \beta_{20} M\_DIVER_{i,t} + \beta_{21} M\_FX_{i,t} + \beta_{22} M\_PR_{i,t} + \beta_{23} M\_AGC_{i,t} \\
& + \beta_{24} M\_FCF_{i,t} + \beta_{25} M\_GROW\_MB_{i,t} + \beta_{26} M\_GROW\_PT_{i,t} + \beta_{27} M\_SR_{i,t} \\
& + \beta_{28} M\_ATR_{i,t} + \beta_{29} M\_TAX\_CLTL_{i,t} + \beta_{30} M\_CFV_{i,t} + \beta_{31} M\_PROF_{i,t} \\
& + \beta_{32} M\_BETA_{i,t} + \beta_{33} M\_SIZE_{i,t} + \beta_{34} M\_CVA_{i,t} + \beta_{35} M\_AGE_{i,t} + \beta_{36} M\_LTD_{i} \\
& + \beta_{37} M\_SLACK_{i,t} + \varepsilon_{i,t}
\end{aligned}
$$

5.6 REGRESSION RESULTS

5.6.1 Australian DCs and MCs Dividend Payout Determinants

The analysis is based on level which allows for a more direct interpretation of the results and avoids some measurement issues that exist in the change analysis (Nissim and Ziv, 2001).

Table 5.1 shows the application of dividend payout (cash dividend and total dividend payout ratios) and the explaining capacity of the determinants across Australian DCs and MCs employing Model I where it does not assume the distribution of DCs' and MCs' dependent and independent variables to be similar.

The regression analysis presented in Table 5.1 indicates four sets of regression results across DCs and MCs for both cash dividend payout ratios ($DIVC_{i,t}$) and total dividend payout ratios ($DIVR_{i,t}$). Results show that the first determining factor of diversification ($DIVER_{i,t}$) of firms has negative and highly significant impact on DCs' cash dividend payout decision (t=-4.40). Similarly, $DIVER_{i,t}$ factor for DCs also show a significant and negative (t=-2.76) relationship in explaining cash and share repurchase payout ratios (broader definition of dividend). This suggest that when Australian DCs expand in terms of number of active subsidiaries in different geographical locations within the local country, it decreases both cash and total dividend payments to shareholders.. However, no significant relationship is found with diversification of MCs and type of dividend payment modes (e.g. cash dividend or total dividend). This suggests that MCs' expansion both nationally and internationally has no significant impact on dividend payout decision.

A weak and significant positive relationship is found in foreign exchange risk ($FX_{i,t}$) for DCs in explaining total dividend payout ratios (t=1.69). This results suggest that when the exchange rate fluctuates, the Australian DCs are in a better position relative to MCs, as it appears that the variation in foreign exchange rate favours the DCs' increase in the dividend payment method through share repurchase rather than just cash dividends. And this may be due to DCs maintaining the value of their share within the firm and not letting their share value unnecessarily inflate in the market. No apparent significant relationship is observed in MCs' $FX_{i,t}$ variation and its impact on cash dividend payments or share repurchases activities.

Prior literature suggests that dividends can be used in reducing agency problems between managers and stockholders. For example, the payment of dividends reduces the discretionary funds available to managers for perquisite consumption and helps address the manager-stockholder conflict (Jensen & Meckling, 1976; Easterbrook, 1984; Crutchley & Hansen, 1989). While the direct measure of agency costs is used here (ratio of number of shareholders to total outstanding shares) to capture the agency problem between stockholders and managers, no perceptible evidence is found in either of Australian DCs or MCs. Similarly, the free cash flow ($FCF_{i,t}$) of agency costs shows that there is an inefficient use of funds in Australian firms which decreases significantly their cash dividend payments capacity across DCs and MCs; however, this relationship is not significant. This result suggest that the funds remaining after financing all positive net present value projects cause conflicts of interest between managers and shareholders almost identically between DCs and MCs. This implies that the managers of Australian DCs and MCs use the excess cash flow to maximize their own wealth by spending on unnecessary managerial expenses at the cost of shareholders by not paying cash dividends to their shareholders on time. This result is inconsistent with Jensen (1986) who finds that free cash flow positively and significantly affects dividend payout ratios higher levels of free cash flow will have higher agency costs and need higher dividends payout ratios to reduce those agency costs.

Two proxies for growth factors are used to explain the variation in cash and cash and share repurchase for Australian DCs and MCs. While $GROW\_MB_{i,t}$ captures the future growth opportunities, $GROW\_PT_{i,t}$ attempts to confine historical growth rate and its determining power to explain dividend increase or decrease across Australian DCs and MCs. An insignificant impact of future growth opportunities is experimented within explaining both DCs' and MCs' cash dividend payments and this finding is a contradiction with prior literature and pecking order theory (Rozeff, 1982; Lang & Litzenberger, 1989; Gaver & Gaver, 1993; Brav et al., 2005).

$GROW\_PT_{i,t}$ attempts to capture DCs' and MCs' past growth rate when deciding how much of its earnings it needs to retain (for growth), and how much to give away as dividends. As the evidence shows past growth has weak negative insignificant impact on MCs' cash dividend payments, similarly, no significant relationship is detected for DCs' cash dividend payments.

The significant and positive influence of stock return ($SR_{i,t}$) in explaining cash dividend payment for Australian DCs (t=3.03 and t=3.04) suggest that as the stock return increases the dividend payment increases as a result, especially when investors require a premium to hold high return stocks when dividends are taxed at a higher rate than capital gains tax. Further, this evidence is consistent with Bajaj and Vijh's (1990) argument that dividend increases are associated with increases in stock return because the percentage change in stock price is typically much smaller than the percentage change in its dividend. However, stock return has no significant relationship to determine Australian MCs' cash dividend and cash and repurchase type of dividend payout ratio. This is consistent with Black and Scholes (1974).

The tax clientele ($TAX\_CLTL_{i,t}$) coefficient appears to be positive and significant in explaining cash dividend payout ratios for both DCs (t=2.15) and MCs (t=3.05) and also cash and share repurchase mode of dividend payout ratios across DCs (t=1.94) and MCs (t=3.59). This result is consistent with DeAngelo and Masulis (1980) and Litzenberger and Ramaswamy (1979) among others. This result finds support for the tax clientele arguments where it states that as the institutional holdings increase, the cash dividend payment increases proportionately, as the institutional shareholders of Australian DCs and MCs are enable to take higher tax advantage as they fall in the low tax bracket.

The signalling theory of DCs and MCs is captured by using a proxy for cash flow variability ($CFV_{i,t}$). The negative and significant findings of $CFV_{i,t}$ explains cash dividend payout for DCs (t=-4.33). The results demonstrate that firms with high volatile future cash flows pay significantly lower cash dividends. The existence of signalling theory result in Australian DCs is consistent with Pettit (1972), Asquith and Mullins (1983) and Miller and Rock (1985). No apparent significant relationship is found to explain MCs dividend payout ratios.

Profitability ($PROF_{i,t}$) factor is found with expected positive sign and significant for both DCs (t=3.35 and t=3.24) and MCs (t=1.89 or t=1.71) which is consistent with Fama and French's (2001) argument that higher profitability implies greater capacity to distribute cash - thus a stronger incentive to retain cash. The result also indicates that it is easier and more cost effective to finance internally and consequently pay higher dividends.

Although it is often argued that firms with higher systematic firm beta tend to adopt a policy of setting a relatively low payout ratio (Rozeff, 1982; Schooley & Barney, 1994), the evidence found in this analysis is contradictory evidence as the beta coefficient is positive and highly significant for explaining DCs (t=2.67 and t=2.48) across cash and cash and share repurchase. A possible explanation for this result can be argued from the financing costs point of view. For example, Rozeff (1982) uses beta as proxy for external financing costs to maintain dividend payout, and possibly the positive significant result attempts to suggest that as the systematic risks of Australian DCs increases the cash dividend payout also increases since the costs of external financing outweigh the benefit of maintaining stable dividend payout to shareholders. Nevertheless, to explain Australian MCs' cash or non cash dividend payout is not influenced by firm risk for the sample selected in this study.

The coefficient of firm size is significant and in the hypothesized direction to explain Australian DCs' and MCs' cash dividend payout and cash and share repurchase (t=4.37 and t=4.49; t=1.67 and t=2.22). This indicates that as the Australian DCs become larger, it significantly increases the capacity to have higher payout ratio. This evidence also suggest that as the DCs become larger it gets easier for them to get access to capital markets to raise funds and are therefore less dependent on internal funds enabling them to pay higher dividends, which is consistent with Holder, Langrerhr and Hexter (1998).

The debt covenant hypothesis predicts that firms will decrease dividends after debt issue and the findings of our result support this theory which is consistent with DeAngelo and DeAngelo (1990) and Jensen et al. (1992). The inverse and significant relationship between debt and dividend payout ratios of cash and cash and share repurchase for MCs is negative and significant (t=-2.51 or t=-2.44), suggesting that as the debt ratio increases, the cash dividend payment decreases due to high fixed financial commitments. However, long-term debt does not show any statistical significant relationship to determine Australian DCs dividend payout ratios.

Finally, managerial considerations of financial slack ($SLACK_{i,t}$) predicts a negative and significant results for Australian DCs (t=-3.65 and t=-2.78) only to explain cash dividend payments. The result indicate that in order to be able to retain the ability to undertake profitable investments, DCs may prefer to increase their financial slack rather than pay higher cash dividends. Interestingly, this result only holds for MCs' cash and share repurchase payout ratios but not cash payout ratios.

Table 5.1
The determinants of cash dividends and total dividends for Australian DCs and MCs

This table reports the results of OLS regression (Model I) to obtain the parameters and t-statistics accordingly for the sample of 2248 (994 DCs and 1254 MCs separately) listed companies in the Australian Stock Exchange over 10 years to 2004. The adjusted R squared indicates the model's goodness of fit.

$$DIVC_{i,t}^{*} = \beta_0 + \beta_1 DIVER_{i,t} + \beta_2 FX_{i,t} + \beta_3 PR_{i,t} + \beta_4 AGC_{i,t} + \beta_5 FCF_{i,t} + \beta_6 GROW\_MB_{i,t} + \beta_7 GROW\_PT_{i,t} + \beta_8 SR_{i,t} + \beta_9 ATR_{i,t} + \beta_{10} TAX\_CLTL_{i,t} + \beta_{11} CFV_{i,t} + \beta_{12} PROF_{i,t} + \beta_{13} BETA_{i,t} + \beta_{14} SIZE_{i,t} + \beta_{15} CVA_{i,t} + \beta_{16} AGE_{i,t} + \beta_{17} LTD_{i,t} + \beta_{18} SLACK_{i,t} + \varepsilon_{i,t}$$

* indicates that this model uses two different measurement of dividend payout ratios which is explained below.
Two dependent variables have been employed and they are: $DIVC_{i,t}$ (cash payout ratios) is calculated using cash dividend paid to net earnings and $DIVR_{i,t}$ (cash and share repurchase dividend payout ratios) is calculated as cash plus change in treasury stock scaled by net earnings. $DIVER_{i,t}$ (diversification) is the total number of subsidiaries that any firm has within their domicile country and overseas. $FX_{i,t}$ (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. $PR_{i,t}$ (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. $AGC_{i,t}$ (agency cost) is the natural logarithm of total shareholders. $FCF_{i,t}$ (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortization plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. Two growth measures have been used in this study namely $GROW\_MB_{i,t}$ (market value of equity to book value of asset) which is measured as market value of asset to book value of asset. And secondly, $GROW\_PT_{i,t}$ (past growth) which is measured as the change in total assets over total assets. $SR_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. $ATR_{i,t}$ (average tax ratios) is calculated as total tax paid per annum scaled by net profit. $TAX\_CLTL_{i,t}$ (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. $CFV_{i,t}$ (cash flow variation) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. $SIZE_{i,t}$ is the natural logarithm of total asset. $CVA_{i,t}$ (collateral value of assets) is the ratio of fixed assets to total assets. $AGE_{i,t}$ is the natural logarithm of the age of the firm in years from date of incorporation. $LEVERAGE_{i,t}$ is the ratio of long-term debt to long-term debt plus market value of equity. $SLACK_{i,t}$ (financial slack) is measured as the sum of cash balances and marketable securities scaled by the market value of equity.

	DCs				MCs			
	$DIVC_{i,t}$		$DIVR_{i,t}$		$DIVC_{i,t}$		$DIVR_{i,t}$	
	Coeff	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.15	-0.46	-0.28	-0.81	-0.69	-1.36	-0.89	-1.47
DIVER$_{i,t}$	-0.08	**-4.40** [a]	-0.06	**-2.76** [a]	-0.02	-1.13	-0.03	-1.60
FX$_{i,t}$	0.05	0.75	0.14	**1.69** [c]	-0.11	-1.35	-0.10	-1.01
PR$_{i,t}$	0.00	0.82	0.00	1.07	0.01	1.62	0.01	1.27
AGC$_{i,t}$	0.02	1.00	0.02	0.92	0.06	1.41	0.06	1.43
FCF$_{i,t}$	-0.01	-0.79	0.00	-0.35	-0.03	-0.69	-0.01	-0.21
GROW_MB$_{i,t}$	0.00	0.45	0.00	0.52	0.00	0.61	0.00	0.49
GROW_PT$_{i,t}$	-0.01	-1.39	-0.01	-1.15	-0.05	-0.59	-0.06	-0.59
SR$_{i,t}$	0.03	**3.03** [a]	0.03	**3.04** [a]	0.01	0.69	0.01	0.85
ATR$_{i,t}$	0.00	-0.39	0.00	-0.51	0.05	0.58	0.07	0.70
TAX_CLTL$_{i,t}$	0.57	**2.15** [a]	0.52	**1.94** [b]	1.15	**3.05** [a]	1.50	**3.59** [a]
CFV$_{i,t}$	-4.39	**-4.33** [a]	-4.24	**-4.20** [a]	-1.32	-0.53	0.23	0.09
PROF$_{i,t}$	0.04	**3.35** [a]	0.03	**3.24** [a]	0.24	**1.89** [b]	0.22	**1.71** [c]
BETA$_{i,t}$	0.47	**2.67** [a]	0.46	**2.48** [a]	-0.01	-0.05	0.45	1.85
SIZE$_{i,t}$	0.07	**4.37** [a]	0.07	**4.49** [a]	0.04	**1.67** [c]	0.07	**2.22** [b]
CVA$_{i,t}$	0.00	0.02	0.00	0.03	-0.26	**-2.24** [b]	-0.21	-1.63
AGE$_{i,t}$	-0.03	-1.54	-0.03	-1.30	0.02	0.48	0.03	0.52
LTD$_{i,t}$	-0.14	-1.62	-0.12	-1.37	-0.34	**-2.51** [b]	-0.35	**-2.44** [b]
SLACK$_{i,t}$	-3.21	**-3.65** [a]	-6.19	**-2.78** [a]	-0.40	-0.64	4.64	**2.05** [b]
Adj R-sqr	0.45		0.45		0.42		0.45	
No. of Obs	994		994		1254		1254	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

5.6.2 Effect of Multinationality on Dividend Payout

To assess the impact of multinationality, the dichotomous variable for multinationality (*$MULT_{i,t}$*) is introduced into Model 1. A Likelihood Ratio (LR) test is performed to assess the significance of this variable. The results indicate that multinationality is a significant variable in both cash and non-cash dividend payment determination (LR F-stat=5.02 with prob=0.004 and F-stat=36.08 with prob=0.000 respectively). The positive sign on the coefficient indicates that MCs have significantly higher dividend payout activities than DCs. To help explain the difference in dividend payout between DCs and MCs and to assess the impact of individual economic determinants on MCs, Model 2 was estimated.

Table 5.2 presents the effect of multinationality (*$MULT_{i,t}$*) of Australian firms on cash dividend payments and share repurchase activities. The positive direction of the *$MULT_{i,t}$* coefficients (0.02 for cash dividend payout ratios and 0.04 for cash and share repurchase type dividend payout ratios) is consistent with the international theory that Hines (1996) developed. He documents that U.S. multinational firms paid higher dividends from after tax profit relative to DCs because the unusual high fraction of those profits came from foreign profits (non-U.S. sources). However, this result does not have any significant impact in explaining Australian MCs' decision payment decisions relative to DCs counterparts. A possible explanation of this might be the fact that Australian MCs' diversification benefit and tax benefit in operating in multiple countries do not outweigh the risks (e.g. foreign risk, expropriation and economic risks) that they encounter. Further, the result is different for Australian MCs as opposed to US MCs (eg., not paying higher dividends than DCs counterparts) because Australian MCs have not fully exploited the benefits of international operation. Also Australian DCs can take full advantage of franking credits (profits earned domestically) but Australian MCs cannot take full advantage of franking credits as a significant proportion of their profits are earned overseas. Further, Australian MCs are in their early age of being multinational relative to US firms and given Australian MCs are in their growing phase, it will take time to fully realise the techniques and strategies to minimize the costs and maximize the benefit in an effective manner which will eventually enable to pay significantly higher dividends than their DCs counter parts.

However, the adjusted R^2 suggest that construction of the model is explaining about 39% of the cash dividend payment and 41% of share repurchase activities between DCs and MCs. The rest of the determining factors maintain the expected signs and significance level as in the earlier table.

Table 5.2
The effect of multinationality on cash dividend and total dividend in Australian firms

This table reports the results of OLS regression (Model II) to obtain the parameters and t-statistics accordingly for the sample of 2248 (994 DCs and 1254 MCs separately) listed companies in the Australian Stock Exchange over 10 years to 2004. The adjusted R squared indicates the model's goodness of fit.

$$DIVC_{i,t}^{*} = \beta_0 + \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 PR_{i,t} + \beta_5 AGC_{i,t} + \beta_6 FCF_{i,t} + \beta_7 GROW\_MB_{i,t} + \beta_8 GROW\_PT_{i,t} + \beta_9 SR_{i,t} + \beta_{10} ATR_{i,t} + \beta_{11} TAX\_CLTL_{i,t} + \beta_{12} CFV_{i,t} + \beta_{13} PROF_{i,t} + \beta_{14} BETA_{i,t} + \beta_{15} SIZE_{i,t} + \beta_{16} CVA_{i,t} + \beta_{17} AGE_{i,t} + \beta_{18} LTD_{i,t} + \beta_{19} SLACK_{i,t} + \varepsilon_{i,t}$$

* indicates that this model uses two different measurement of dividend payout ratios which is explained below.
Two dependent variables have been employed and they are: $DIVC_{i,t}$ (cash payout ratios) is calculated using cash dividend paid to net earnings and $DIVR_{i,t}$ (cash and share repurchase dividend payout ratios) is calculated as cash plus change in treasury stock scaled by net earnings. Multinationality ($MULT_{i,t}$) effect is measured where it takes a value of 1 when a corporation is a multinational otherwise it is 0. $DIVER_{i,t}$ (diversification) is the total number of subsidiaries that any firm has within their domicile country and overseas. $FX_{i,t}$ (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. $PR_{i,t}$ (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. $AGC_{i,t}$ (agency cost) is the natural logarithm of total shareholders. $FCF_{i,t}$ (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortization plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. Two growth measures have been used in this study namely $GROW\_MB_{i,t}$ (market value of equity to book value of asset) which is measured as market value of asset to book value of asset. And secondly, $GROW\_PT_{i,t}$ (past growth) which is measured as the change in total assets over total assets. $SR_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. $ATR_{i,t}$ (average tax ratios) is calculated as total tax paid per annum scaled by net profit. $TAX\_CLTL_{i,t}$ (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. $CFV_{i,t}$ (cash flow variation) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. $SIZE_{i,t}$ is the natural logarithm of total asset. $CVA_{i,t}$ (collateral value of assets) is the ratio of fixed assets to total assets. $AGE_{i,t}$ is the natural logarithm of the age of the firm in years from date of incorporation. $LEVERAGE_{i,t}$ is the ratio of long-term debt to long-term debt plus market value of equity. $SLACK_{i,t}$ (financial slack) is measured as the sum of cash balances and marketable securities scaled by the market value of equity. Model II incorporates a dummy variable in addition to common eighteen variables to capture multinationality. For example, other attributes: inflation, interest rates, restrictions on the quantity of amount DCs and MCs can borrow overseas, debt market efficiency and borrowing costs to finance dividend payments which *FX, PR* and *DIVER* do not capture.

	$DIVC_{i,t}$		$DIVR_{i,t}$	
	Coeff	**t-Stat**	**Coeff**	**t-Stat**
C	-0.14	-0.54	-0.27	-0.97
$MULT_{i,t}$	0.02	0.56	0.04	0.81
$DIVER_{i,t}$	-0.04	**-3.93** [a]	-0.05	**-3.56** [a]
$FX_{i,t}$	-0.03	-0.48	0.01	0.10
$PR_{i,t}$	0.00	1.24	0.00	1.01
$AGC_{i,t}$	0.03	1.57	0.03	**1.77** [b]
$FCF_{i,t}$	-0.01	-0.97	0.00	-0.44
$GROW\_MB_{i,t}$	0.00	0.90	0.00	0.92
$GROW\_PT_{i,t}$	-0.01	-0.69	-0.01	-1.02
$SR_{i,t}$	0.03	**3.53** [a]	0.03	**3.62** [a]
$ATR_{i,t}$	0.00	0.20	0.00	0.34
$TAX\_CLTL_{i,t}$	0.84	**3.80** [a]	0.95	**4.10** [a]
$CFV_{i,t}$	-4.58	**-5.12** [a]	-3.88	**-4.39** [a]

PROF$_{i,t}$	0.04	**4.47**[a]	0.03	**3.84**[a]
BETA$_{i,t}$	0.00	0.01	0.25	1.60
SIZE$_{i,t}$	0.05	**4.39**[a]	0.07	**4.96**[a]
CVA$_{i,t}$	-0.03	-0.54	-0.01	-0.15
AGE$_{i,t}$	-0.02	-1.52	-0.01	-0.86
LTD$_{i,t}$	-0.17	**-2.59**[a]	-0.19	**-2.66**[a]
SLACK$_{i,t}$	-0.89	-0.84	-0.19	-0.06
Adj R-sqr	0.39		0.41	
No. of Obs	2248		2248	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

5.6.3 Interaction Effect on Slope Coefficients and Dividend Payout

Although no significant relationship is detected in Model II for the effect of firms' multinationality in determining dividend payments, nevertheless it is interesting given the LR result indicated this variable has significant deterring power to explain both cash dividends and share repurchase type of payments. Therefore, an interaction variable of each proposed determinant is introduced in Model III to capture the difference of each of the explanatory factors' ability in distinguishing the dividend payments determinants across DCs and MCs.

The evidence of this interaction effect on individual slope coefficient for MCs is empirical and therefore no reference is made in explaining Table 5.3. The interaction of MCs' diversification slope coefficient for cash dividend payments and repurchase payments suggests two different explanations of dividend payments. For example, the interaction of MCs' geographical expansion or diversification (*M_DIVER*) locally and internationally has positive and significant impact on increasing cash dividend payments (t=2.25) while it does not have a significant impact on overall dividend payout ratios. This result is intuitive and justified in a sense that diversification cannot have same directional impact on both cash and a non-cash dividend payment as one is believed to be a substitute of another.

The slope coefficient of foreign exchange risk (*M_FX*) states that the fluctuations of foreign exchange risks impacts significantly (t=-1.87) more on the reduction of combined payout ratios (cash and share repurchase) but not cash dividend payout ratios only for Australian MCs relative to DCs.

Consistent with Hines (1996), the interaction factor of profitability (*M_PROF*) is positive and significant (t=1.65) which suggest an increase in profitability would significantly increase the Australian MCs' cash dividend payments capacity than its DCs counterparts.

The interaction of negative and significant (t=-1.80) firm-specific risk (*BETA*) coefficient or proxy for external financing costs suggests that it is rather costlier for Australian MCs to raise finance externally in order to maintain stable cash dividend payout and therefore firm risk significantly decreases cash dividend payments relative to DCs. Similarly, the increase in firm-specific risks discourages significantly Australian MCs to be involved in share repurchase activity type of dividend payment mode, since the result seems to be insignificant for our sample (t=-0.05). This may be argued in the sense that if the managers could sense that firm-specific risk is increasing, then it would be unwise to payout cash dividends instead of buying the shares back from the shareholders, which will make more sense as it saves them losing out on the market value of the firm due to higher firm-specific risks.

Interestingly, the significant of interaction variable (*M_SIZE*) for MCs show that it is negative and insignificant in explaining the slope difference of cash dividend payouts (t=-0.72). Similarly, the slope coefficient of collateral value of assets for MCs also shows a negative and significant relationship (t=-1.97), which suggests that as MCs increase their collateralised assets, it reduces the cash dividend payments for MCs more than DCs. Intuitively, this result suggests that Australian MCs are not exploiting the benefit of transaction costs of raising long term debt, especially when it needs to finance dividend externally.

Finally, the interaction slope coefficients of MCs financial *M_SLACK* variable suggest that Australian MCs cash dividend payment is positive and significant (t=2.62) and dividends comprised of cash and share repurchase is also positive and significant (t=3.44) and a possible explanation for this is that Australian MCs do not participate in financial slacking and therefore MCs are able to pay relatively higher dividends than DCs.

Table 5.3
Interaction effects for cash dividend and total dividend determinants of Australian DCs and MCs

This table reports the results of OLS regression (Model III) to obtain the parameters and t-statistics accordingly for the sample of 2248 (994 DCs and 1254 MCs separately) listed companies in the Australian Stock Exchange over 10 years to 2004. The adjusted R squared indicates the model's goodness of fit.

$$
\begin{aligned}
DIVC_{i,t}^{*} = {} & \beta_0 + \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 PR_{i,t} + \beta_5 AGC_{i,t} + \beta_6 FCF_{i,t} \\
& + \beta_7 GROW\_MB_{i,t} + \beta_8 GROW\_PT_{i,t} + \beta_9 SR_{i,t} + \beta_{10} ATR_{i,t} + \beta_{11} TAX\_CLTL_{i,t} \\
& + \beta_{12} CFV_{i,t} + \beta_{13} PROF_{i,t} + \beta_{14} BETA_{i,t} + \beta_{15} SIZE_{i,t} + \beta_{16} CVA_{i,t} + \beta_{17} AGE_{i,t} \\
& + \beta_{18} LTD_{i,t} + \beta_{19} SLACK_{i,t} + \beta_{20} M\_DIVER_{i,t} + \beta_{21} M\_FX_{i,t} + \beta_{22} M\_PR_{i,t} \\
& + \beta_{23} M\_AGC_{i,t} + \beta_{24} M\_FCF_{i,t} + \beta_{25} M\_GROW\_MB_{i,t} + \beta_{26} M\_GROW\_PT_{i,t} \\
& + \beta_{27} M\_SR_{i,t} + \beta_{28} M\_ATR_{i,t} + \beta_{29} M\_TAX\_CLTL_{i,t} + \beta_{30} M\_CFV_{i,t} \\
& + \beta_{31} M\_PROF_{i,t} + \beta_{32} M\_BETA_{i,t} + \beta_{33} M\_SIZE_{i,t} + \beta_{34} M\_CVA_{i,t} + \beta_{35} M\_AGE \\
& + \beta_{36} M\_LTD_{i,t} + \beta_{37} M\_SLACK_{i,t} + \varepsilon_{i,t}
\end{aligned}
$$

* indicates that this model uses two different measurement of dividend payout ratios which is explained below.
Two dependent variables have been employed and they are: $DIVC_{i,t}$ (cash payout ratios) is calculated using cash dividend paid to net earnings and $DIVR_{i,t}$ (cash and share repurchase dividend payout ratios) is calculated as cash plus change in treasury stock scaled by net earnings. In order to capture the multinationality effect a dummy variable is introduced where it takes a 1 when a corporation is a multinational otherwise it is 0. $DIVER_{i,t}$ (diversification) is the total number of subsidiaries that any firm has within their domicile country and overseas. $FX_{i,t}$ (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. $PR_{i,t}$ (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. $AGC_{i,t}$ (agency cost) is the natural logarithm of total shareholders. $FCF_{i,t}$ (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortization plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. Two growth measures have been used in this study namely $GROW\_MB_{i,t}$ (market value of equity to book value of asset) which is measured as market value of asset to book value of asset. And secondly, $GROW\_PT_{i,t}$ (past growth) which is measured as the change in total assets over total assets. $SR_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. $ATR_{i,t}$ (average tax ratios) is calculated as total tax paid per annum scaled by net profit. $TAX\_CLTL_{i,t}$ (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. $CFV_{i,t}$ (cash flow variation) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. SIZE $_{i,t}$ is the natural logarithm of total asset. $CVA_{i,t}$ (collateral value of assets) is the ratio of fixed assets to total assets. $AGE_{i,t}$ is the natural logarithm of the age of the firm in years from date of incorporation. $LEVERAGE_{i,t}$ is the ratio of long-term debt to long-term debt plus market value of equity. $SLACK_{i,t}$ (financial slack) is measured as the sum of cash balances and marketable securities scaled by the market value of equity. Model III incorporates slope dummy variables in addition to common eighteen variables to capture multinationality impact on each of the explanatory variables. For example, Model III aims to discover any unexplained issues that Model II failed to capture which are either hard to measure or just not available to explain the MCs' operational behaviour and its impact on dividend payments. Besides, some of these other attributes are hard to measure since some are qualitative information. The interaction dummy variable is used to find the significant difference of the common eight variables. For example, *M_DIVER* takes the actual value of MCs while it is 0 for the DCs.

	$DIVC_{i,t}$		$DIVR_{i,t}$	
	Coeff	t-Stat	Coeff	t-Stat
C	-0.15	-0.46	-0.28	-0.80
$MULT_{i,t}$	-0.54	-0.91	-0.61	-0.90
$DIVER_{i,t}$	-0.08	**-4.34**[a]	-0.06	**-2.72**[a]
$FX_{i,t}$	0.05	0.74	0.14	**1.67**[c]
$PR_{i,t}$	0.00	0.81	0.00	1.05
$AGC_{i,t}$	0.02	0.98	0.02	0.91
$FCF_{i,t}$	-0.01	-0.77	0.00	-0.34
$GROW\_MB_{i,t}$	0.00	0.45	0.00	0.52
$GROW\_PT_{i,t}$	-0.01	-1.37	-0.01	-1.13
$SR_{i,t}$	0.03	**2.99**[a]	0.03	**3.00**[a]
$ATR_{i,t}$	0.00	-0.38	0.00	-0.50
$TAX\_CLTL_{i,t}$	0.57	**2.12**[a]	0.52	**1.91**[b]
$CFV_{i,t}$	-4.39	**-4.26**[a]	-4.24	**-4.14**[a]
$PROF_{i,t}$	0.04	**3.30**[a]	0.03	**3.20**[a]
$BETA_{i,t}$	0.47	**2.63**[a]	0.46	**2.44**[a]
$SIZE_{i,t}$	0.07	**4.31**[a]	0.07	**4.43**[a]
$CVA_{i,t}$	0.00	0.02	0.00	0.03

$AGE_{i,t}$	-0.03	-1.52	-0.03	-1.28
$LTD_{i,t}$	-0.14	-1.60	-0.12	-1.35
$SLACK_{i,t}$	-3.21	**-3.60**[a]	-6.19	**-2.74**[a]
$M\_DIVER_{i,t}$	0.06	**2.25**[a]	0.03	0.91
$M\_FX_{i,t}$	-0.17	-1.53	-0.24	**-1.87**[b]
$M\_PR_{i,t}$	0.00	0.82	0.00	0.52
$M\_AGC_{i,t}$	0.04	0.93	0.05	0.99
$M\_FCF_{i,t}$	-0.03	-0.55	-0.01	-0.13
$M\_GROW\_MB_{i,t}$	0.00	0.06	0.00	-0.12
$M\_GROW\_PT_{i,t}$	-0.04	-0.50	-0.05	-0.52
$M\_SR_{i,t}$	-0.01	-0.83	-0.01	-0.74
$M\_ATR_{i,t}$	0.05	0.63	0.07	0.77
$M\_TAX\_CLTL_{i,t}$	0.58	1.27	0.98	**2.02**[a]
$M\_CFV_{i,t}$	3.06	1.16	4.47	1.63
$M\_PROF_{i,t}$	0.20	**1.65**[c]	0.18	1.48
$M\_BETA_{i,t}$	-0.48	**-1.80**[b]	-0.01	-0.05
$M\_SIZE_{i,t}$	-0.02	-0.72	0.00	0.03
$M\_CVA_{i,t}$	-0.26	**-1.97**[a]	-0.21	-1.48
$M\_AGE_{i,t}$	0.05	1.07	0.05	0.99
$M\_LTD_{i,t}$	-0.20	-1.26	-0.23	-1.40
$M\_SLACK_{i,t}$	2.81	**2.62**[a]	10.83	**3.44**[a]
Adj R-sqr	0.44		0.45	
No. of Obs	2248		2248	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

5.6.4 Industry Effect on Dividend Payout

In order to investigate the industry influence on DCs and MCs cash and cash and repurchase type dividend payments, Table 5.4 shows that firms that belong to the transportation and communication industry it has negative and significant relationship with cash dividend payments (t=-1.77) but no apparent relationship is found with any other industry classifications. This result is consistent with Lintner (1956), Baker and Powell (2000) and Dempsey, Laber and Rozeff (1993). This evidence suggests that after controlling for industry effect the original findings of the cash and cash and share repurchase of dividend payout determinants mainly remain unchanged. Further, this industry result also suggest that in Australia there is no apparent evidence of industry influence on explaining any important relationship of any DCs and MCs to any particular industry apart from firms that belong to the transportation and communication industry.

Table 5.4
Industry effect on cash dividend and total dividend for Australian firms

This table reports the industry effect on the dividend payout results of OLS regression (Model II) to obtain the parameters and t-statistics accordingly for the sample of 2248 (994 DCs and 1254 MCs separately) listed companies in the Australian Stock Exchange over 10 years to 2004. The adjusted R squared indicates the model's goodness of fit.

$$DIVC_{i,t}^{*} = \beta_0 + \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 PR_{i,t} + \beta_5 AGC_{i,t} + \beta_6 FCF_{i,t} + \beta_7 GROW\_MB_{i,t}$$
$$+ \beta_8 GROW\_PT_{i,t} + \beta_9 SR_{i,t} + \beta_{10} ATR_{i,t} + \beta_{11} TAX\_CLTL_{i,t} + \beta_{12} CFV_{i,t} + \beta_{13} PROF_{i,t}$$
$$+ \beta_{14} BETA_{i,t} + \beta_{15} SIZE_{i,t} + \beta_{16} CVA_{i,t} + \beta_{17} AGE_{i,t} + \beta_{18} LTD_{i,t} + \beta_{19} SLACK_{i,t}$$
$$+ \sum_{i,t=1}^{k=8} Industry\_Dummy_{i,t,k} + \varepsilon_{i,t}$$

* indicates that this model uses two different measurement of dividend payout ratios which is explained below.

Two dependent variables have been employed and they are: $DIVC_{i,t}$ (cash payout ratios) is calculated using cash dividend paid to net earnings and $DIVR_{i,t}$ (cash and share repurchase dividend payout ratios) is calculated as cash plus change in treasury stock scaled by net earnings. Multinationality effect is measured where it takes a value of 1 when a corporation is a multinational otherwise it is 0. $DIVER_{i,t}$ (diversification) is the total number of subsidiaries that any firm has within their domicile country and overseas. $FX_{i,t}$ (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. $PR_{i,t}$ (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. $AGC_{i,t}$ (agency cost) is the natural logarithm of total shareholders. $FCF_{i,t}$ (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortization plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. Two growth measures have been used in this study namely $GROW\_MB_{i,t}$ (market value of equity to book value of asset) which is measured as market value of asset to book value of asset. And secondly, $GROW\_PT_{i,t}$ (past growth) which is measured as the change in total assets over total assets. $SR_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. $ATR_{i,t}$ (average tax ratios) is calculated as total tax paid per annum scaled by net profit. $TAX\_CLTL_{i,t}$ (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. $CFV_{i,t}$ (cash flow variation) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. $SIZE_{i,t}$ is the natural logarithm of total asset. $CVA_{i,t}$ (collateral value of assets) is the ratio of fixed assets to total assets. $AGE_{i,t}$ is the natural logarithm of the age of the firm in years from date of incorporation. $LEVERAGE_{i,t}$ is the ratio of long-term debt to long-term debt plus market value of equity. $SLACK_{i,t}$ (financial slack) is measured as the sum of cash balances and marketable securities scaled by the market value of equity. Model II incorporates a dummy variable in addition to common eighteen variables to capture multinationality. There are eight industries in the sample and a dichotomous variable is used to capture each of these industries' effect on dividend payout ratios. The industries are: *IND_A_AGRI_FISH* (agricultural, forestry and fishing); *IND_B_MINING* (metal, coal, oil and gas); *IND_C_CONSTRUCTN* (building constructions and heavy constructions); *IND_D_MNFCTRNG* (manufacturing, food, Tobacco, Textiles, Furniture and Fixtures and Papers); *IND_E_TRNSPT_CMCTN* (Transport, Communication, Electric, and utilities); *IND_F_WHOLESALE* (wholesale trade and durable goods); *IND_G_RETAIL* (retails) and *IND_I_SERVIC* (health, legal, educational, engineering and social).

	$DIVC_{i,t}$		$DIVR_{i,t}$	
	Coeff	**t-Stat**	**Coeff**	**t-Stat**
C	-0.09	-0.33	-0.21	-0.74
$MULT_{i,t}$	0.05	1.20	0.06	1.25
$DIVER_{i,t}$	-0.06	**-4.30** [a]	-0.06	**-3.71** [a]
$FX_{i,t}$	-0.01	-0.22	0.02	0.34
$PR_{i,t}$	0.00	0.87	0.00	0.71
$AGC_{i,t}$	0.03	1.56	0.03	1.77 [b]
$FCF_{i,t}$	0.00	-0.50	0.00	-0.01
$GROW\_MB_{i,t}$	0.00	0.72	0.00	0.79
$GROW\_PT_{i,t}$	-0.01	-0.68	-0.01	-1.00
$SR_{i,t}$	0.03	**3.47** [a]	0.03	**3.61** [a]
$ATR_{i,t}$	0.00	0.13	0.00	0.28
$TAX\_CLTL_{i,t}$	0.82	**3.56** [a]	0.95	**3.89** [a]
$CFV_{i,t}$	-3.97	**-4.61** [a]	-3.36	**-3.88** [a]
$PROF_{i,t}$	0.03	**3.89** [a]	0.03	**3.32** [a]
$BETA_{i,t}$	0.07	0.53	0.31	**1.98** [a]
$SIZE_{i,t}$	0.06	**4.57** [a]	0.07	**4.73** [a]
$CVA_{i,t}$	0.03	0.44	0.04	0.57
$AGE_{i,t}$	-0.02	-0.87	-0.01	-0.36
$LTD_{i,t}$	-0.17	**-2.53** [a]	-0.18	**-2.52** [a]
$SLACK_{i,t}$	-0.85	-0.90	-0.12	-0.04
IND_A_AGRI_FISH	-0.02	-0.16	-0.03	-0.21
IND_B_MINING	-0.10	-1.00	-0.10	-0.94
IND_C_CONSTRUCTN	-0.13	-1.23	-0.12	-1.11
IND_D_MNFCTRNG	-0.04	-0.44	-0.06	-0.64
IND_E_TRNSPT_CMCTN	-0.19	**-1.77** [a]	-0.18	-1.59
IND_F_WHOLESALE	0.02	0.20	0.01	0.05

IND_G_RETAIL	0.08	0.70	0.07	0.57
IND_I_SERVIC	-0.02	-0.22	-0.03	-0.29
Adj R-sqr	0.41		0.42	
No. of Obs	2248		2248	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

5.6.5 Time Varying Effect on Dividend Payout

In order to investigate the time varying effect on cash dividend payout and cash with share repurchases mode of dividend payouts, a yearly dummy (*YR_01*) variable is introduced to investigate the yearly effect of dividend payments across Australian DCs and MCs such that any noteworthy economic events can be captured. The result in Table 5.5 suggests that every year since 1999 the cash payment is disappearing in a higher magnitude than the cash and repurchase type of dividend payments, while the reduction in cash dividend across 2002-2004 is highly significant (t=-2.35, t=-4.13 and t=-3.68 respectively). A similar pattern is also observed in the cash and share repurchase type of dividends payout ratios across 2002, 2003 and 2004 (t=-2.56; t=-3.68 and t=-3.46).

Table 5.5

Time variation effect on cash dividend and total dividend for Australian firms

This table reports the industry effect on the dividend payout results of OLS regression (Model II) to obtain the parameters and t-statistics accordingly for the sample of 2248 (994 DCs and 1254 MCs separately) listed companies in the Australian Stock Exchange over 10 years to 2004. The adjusted R squared indicates the model's goodness of fit.

$$
\begin{aligned}
DIVC_{i,t}^{*} = {} & \beta_0 + \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 PR_{i,t} + \beta_5 AGC_{i,t} + \beta_6 FCF_{i,t} + \beta_7 GROW\_MB_{i,t} \\
& + \beta_8 GROW\_PT_{i,t} + \beta_9 SR_{i,t} + \beta_{10} ATR_{i,t} + \beta_{11} TAX\_CLTL_{i,t} + \beta_{12} CFV_{i,t} + \beta_{13} PROF_{i,t} \\
& + \beta_{14} BETA_{i,t} + \beta_{15} SIZE_{i,t} + \beta_{16} CVA_{i,t} + \beta_{17} AGE_{i,t} + \beta_{18} LTD_{i,t} + \beta_{19} SLACK_{i,t} \\
& + \sum_{i=1}^{t=10} Yearly\_Dummy_{i,t} + \varepsilon_{i,t}
\end{aligned}
$$

* indicates that this model uses two different measurement of dividend payout ratios which is explained below.
Two dependent variables have been employed and they are: $DIVC_{i,t}$ (cash payout ratios) is calculated using cash dividend paid to net earnings and $DIVR_{i,t}$ (cash and share repurchase dividend payout ratios) is calculated as cash plus change in treasury stock scaled by net earnings. Multinationality effect is measured where it takes a value of 1 when a corporation is a multinational otherwise it is 0. $DIVER_{i,t}$ (diversification) is the total number of subsidiaries that any firm has within their domicile country and overseas. $FX_{i,t}$ (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. $PR_{i,t}$ (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. $AGC_{i,t}$ (agency cost) is the natural logarithm of total shareholders. $FCF_{i,t}$ (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortization plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. Two growth measures have been used in this study namely $GROW\_MB_{i,t}$ (market value of equity to book value of asset) which is measured as market value of asset to book value of asset. And secondly, $GROW\_PT_{i,t}$ (past growth) which is measured as the change in total assets over total assets. $SR_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. $ATR_{i,t}$ (average tax ratios) is calculated as total tax paid per annum scaled by net profit. $TAX\_CLTL_{i,t}$ (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. $CFV_{i,t}$ (cash flow variation) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. $SIZE_{i,t}$ is the natural logarithm of total asset. $CVA_{i,t}$ (collateral value of assets) is the ratio of fixed assets to total assets. $AGE_{i,t}$ is the natural logarithm of the age of the firm in years from date of incorporation. $LEVERAGE_{i,t}$ is the ratio of long-term debt to long-term debt plus market value of equity. $SLACK_{i,t}$ (financial slack) is measured as the sum of cash balances and marketable securities scaled by the market value of equity. Model II incorporates a dummy variable in addition to common eighteen variables to capture multinationality. There are 10 years in the sample and a dichotomous variable is used to capture each of these years on dividend payout ratios.

	$DIVC_{i,t}$		$DIVR_{i,t}$	
	Coeff	**t-Stat**	**Coeff**	**t-Stat**

C	-0.08	-0.31	-0.20	-0.65
MULT$_{i,t}$	0.00	0.09	0.02	0.51
DIVER$_{i,t}$	-0.05	**-4.40**[a]	-0.06	**-3.93**[a]
FX$_{i,t}$	0.00	0.10	0.04	0.66
PR$_{i,t}$	0.00	1.25	0.00	0.95
AGC$_{i,t}$	0.04	**2.43**[a]	0.04	**2.81**[a]
FCF$_{i,t}$	0.00	-0.24	0.00	0.02
GROW_MB$_{i,t}$	0.01	1.14	0.01	0.99
GROW_PT$_{i,t}$	-0.01	-0.83	-0.01	-0.92
SR$_{i,t}$	0.03	**3.52**[a]	0.03	**5.96**[a]
ATR$_{i,t}$	0.00	0.42	0.01	0.79
TAX_CLTL$_{i,t}$	0.81	**3.59**[a]	0.91	**3.79**[a]
CFV$_{i,t}$	-4.78	**-5.08**[a]	-4.11	**-4.33**[a]
PROF$_{i,t}$	0.04	**4.89**[a]	0.04	**2.45**[a]
BETA$_{i,t}$	-0.13	-1.07	0.10	0.65
SIZE$_{i,t}$	0.05	**4.33**[a]	0.07	**5.14**[a]
CVA$_{i,t}$	-0.08	-1.42	-0.06	-0.98
AGE$_{i,t}$	-0.01	-0.57	0.00	0.06
LTD$_{i,t}$	-0.15	**-2.22**[a]	-0.15	**-1.95**[a]
SLACK$_{i,t}$	-0.42	-0.44	0.34	0.15
YR_99	-0.07	-1.04	-0.07	-1.00
YR_00	-0.11	**-1.91**[b]	-0.10	-1.59
YR_01	-0.01	-0.15	-0.02	-0.36
YR_02	-0.12	**-2.35**[a]	-0.14	**-2.56**[a]
YR_03	-0.21	**-4.13**[a]	-0.21	**-3.68**[a]
YR_04	-0.20	**-3.68**[a]	-0.20	**-3.46**[a]
Adj R-sqr	0.43		0.44	
No. of Obs	2248		2248	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

Further, the incremental yearly impact is captured by employing an incremental yearly codification from year 1995 to 2004 in order to investigate the average impact of incremental time effect on the cash and cash and share repurchase dividend payments across DCs and MCs. The result in Table 5.6 dictates that on average cash dividend payments has been decreasing significantly (t=-5.58 and t=-5.63) for Australian DCs and MCs (t=-4.05 and t=-3.92) across cash dividend payments and cash and share repurchase payout ratios. Overall, the result of time effect on dividend payments suggests that over the last ten years, both cash and cash and share repurchase declined, almost as equally across DCs and MCs.

Table 5.6
Incremental year effect for Australian DCs and MCs on cash dividend and total dividend

Table 6 presents regression results of Australian DCs and MCs year effect on dividend payout policy. The following table uses the following model to capture the time effect:

$$DIVC_{i,t} = \beta_0 + \beta_1 Yr_{i,t} + \varepsilon_{i,t}$$

	DCs				MCs			
	$DIVC_{i,t}$		$DIVR_{i,t}$		$DIVC_{i,t}$		$DIVR_{i,t}$	
	Coeff	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	38.41	5.63[a]	38.75	5.68[a]	37.60	4.10[a]	38.27	3.97[a]
Yr	-0.02	-5.58[a]	-0.02	-5.63[a]	-0.02	-4.05[a]	-0.02	-3.92[a]
Adj R-sqr	0.02		0.02		0.02		0.02	
No. of Obs	994		994		1254		1254	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

Lastly, a yearly regression analysis is conducted to test whether the determinants that explain cash dividend and cash dividend and share repurchase type of dividend payout vary across countries. The result is reported in Table 5.7 and it suggests that, generally, the significance level of the independent determinants across years varied and this variation remained similar across cash and cash and share repurchase payout ratios. Interestingly, the determining factor remained similar across years for both cash and cash and share repurchase. However, there seems to exist a difference of determining factors for dividends payout ratios between DCs and MCs and this is shown with a significant coefficient of ($MULT_{i,t}$) in year 2002 (t=1.81); otherwise the determining factors stayed relatively similar across years for DCs and MCs except for one particular year 2002. A possible explanation is that there might be an effect of the 2001 terrorist attack on the selling and distribution of multinational corporations internationally.

Table 5.7

Individual yearly effect on cash dividend and total dividend determinants for Australian firms

This Table 5.7 presents individual year regression by employing Model II. The definition of independent and dependent variables are defined earlier. Dependent and independent variables are defined as per Table 5.6. The following model has been used. **a, b and c are the statistical significance level for 1%, 5% and 10% respectively.**

$$DIVC_{i,t}^{*} = \beta_0 + \beta_1 DIVER_{i,t} + \beta_2 FX_{i,t} + \beta_3 PR_{i,t} + \beta_4 AGC_{i,t} + \beta_5 FCF_{i,t} + \beta_6 GROW\_MB_{i,t} + \beta_7 GROW\_PT_{i,t} + \beta_8 SR_{i,t} + \beta_9 ATR_{i,t} + \beta_{10} TAX\_CLTL_{i,t}$$
$$+ \beta_{11} CFV_{i,t} + \beta_{12} PROF_{i,t} + \beta_{13} BETA_{i,t} + \beta_{14} SIZE_{i,t} + \beta_{15} CVA_{i,t} + \beta_{16} AGE_{i,t} + \beta_{17} LTD_{i,t} + \beta_{18} SLACK_{i,t} + \varepsilon_{i,t}$$

	$DIVC_{i,t}$									
	00		01		02		03		04	
	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	-0.86	-0.69	-1.65	**-2.29** [a]	0.92	1.06	0.15	0.20	0.27	0.30
$MULT_{i,t}$	0.08	0.89	-0.11	-1.01	0.16	**1.81** [b]	-0.10	-0.72	-0.13	-1.14
$DIVER_{i,t}$	-0.01	-0.30	-0.05	-1.22	-0.09	**-2.16** [a]	0.00	-0.05	-0.05	-1.47
$FX_{i,t}$	0.26	1.30	0.20	1.15	-0.16	-1.33	-0.12	-0.72	0.02	0.12
$PR_{i,t}$	0.01	0.90	0.02	**2.60** [a]	-0.01	-1.14	0.00	-0.48	0.00	-0.13
$AGC_{i,t}$	0.00	0.06	0.04	0.87	0.08	**1.67** [c]	0.12	**2.29** [a]	-0.05	-1.00
$FCF_{i,t}$	-0.07	-0.38	0.03	1.15	-0.03	-1.26	-0.04	-0.25	-0.06	-1.11
$GROW\_MB_{i,t}$	0.00	-0.06	0.01	1.03	-0.01	-1.35	0.01	0.71	0.02	1.28
$GROW\_PT_{i,t}$	-0.12	-0.80	-0.14	-0.72	-0.01	-1.48	-0.09	-0.62	-0.05	-0.55
$SR_{i,t}$	0.05	**2.12** [a]	0.02	**2.19** [a]	0.03	**1.66** [c]	0.02	**1.67** [a]	0.03	**1.90** [b]
$ATR_{i,t}$	0.16	1.20	0.01	0.64	0.00	-0.72	0.07	1.06	0.29	**6.86** [a]
$TAX\_CLTL_{i,t}$	0.42	0.47	0.99	1.29	0.10	0.17	0.78	1.39	1.42	**3.06** [a]
$CFV_{i,t}$	-0.48	-1.41	-3.63	-1.33	-4.14	**-2.23** [a]	-1.92	-0.89	-6.70	**-2.20** [a]
$PROF_{i,t}$	0.32	1.37	0.12	1.16	0.04	0.87	0.03	0.78	-0.04	-0.31
$BETA_{i,t}$	0.48	0.46	-0.32	-0.67	0.42	1.64	-0.11	-0.20	0.57	1.39
$SIZE_{i,t}$	0.00	-0.10	0.06	**1.85** [a]	0.04	1.42	0.07	**2.00** [a]	0.01	0.33
$CVA_{i,t}$	0.08	0.41	-0.29	-1.60	-0.14	-0.93	0.04	0.24	-0.11	-0.63
$AGE_{i,t}$	0.05	0.99	0.08	**1.65** [a]	0.02	0.47	-0.09	-1.11	0.05	1.02
$LTD_{i,t}$	-0.15	-0.46	-0.07	-0.32	-0.35	**-2.21** [a]	-0.16	-0.66	-0.11	-0.67
$SLACK_{i,t}$	1.28	0.96	-1.32	-0.47	1.66	**1.86** [b]	-1.15	-0.38	-3.69	-1.10
Adj R-sqr	0.64		0.59		0.49		0.43		0.60	
No. of Obs	109		133		121		125		115	

	$DIVR_{i,t}$									
	00		01		02		03		04	
	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	-0.86	-0.69	-1.64	**-2.28** [a]	0.92	1.06	0.03	0.04	0.21	0.23
$MULT_{i,t}$	0.08	0.89	-0.11	-0.99	0.16	**1.81** [b]	-0.03	-0.24	-0.12	-1.07
$DIVER_{i,t}$	-0.01	-0.31	-0.05	-1.23	-0.09	**-2.16** [a]	-0.03	-0.73	-0.05	**-1.70** [b]
$FX_{i,t}$	0.26	1.30	0.20	1.13	-0.16	-1.33	-0.09	-0.55	0.06	0.41
$PR_{i,t}$	0.01	0.90	0.02	**2.58** [a]	-0.01	-1.14	0.00	-0.23	0.00	0.01
$AGC_{i,t}$	0.00	0.06	0.04	0.87	0.08	**1.67** [c]	0.13	**2.49** [a]	-0.05	-1.12
$FCF_{i,t}$	-0.07	-0.38	0.03	1.14	-0.03	-1.26	-0.06	-0.39	-0.05	-0.89
$GROW\_MB_{i,t}$	0.00	-0.06	0.01	1.05	-0.01	-1.35	0.01	0.48	0.02	1.05
$GROW\_PT_{i,t}$	-0.12	-0.80	-0.14	-0.72	-0.01	-1.48	-0.04	-0.30	-0.05	-0.59
$SR_{i,t}$	0.05	**2.12** [a]	0.02	**2.18** [a]	0.03	**1.66** [c]	0.02	1.59	0.03	**1.83** [b]
$ATR_{i,t}$	0.16	1.20	0.01	0.64	0.00	-0.72	0.07	1.00	0.29	**7.23** [a]
$TAX\_CLTL_{i,t}$	0.42	0.47	0.99	1.30	0.10	0.17	0.86	1.44	1.50	**3.21** [a]
$CFV_{i,t}$	-5.47	-1.40	-3.64	-1.33	-4.14	**-2.23** [a]	-2.17	-0.94	-7.39	**-2.33** [a]
$PROF_{i,t}$	0.32	1.37	0.12	1.17	0.04	0.87	0.04	1.06	-0.04	-0.31
$BETA_{i,t}$	0.48	0.45	-0.34	-0.71	0.42	1.64	-0.29	-0.52	1.02	**3.02** [a]
$SIZE_{i,t}$	0.00	-0.10	0.06	**1.85** [c]	0.04	1.42	0.06	**1.90** [b]	0.01	0.33
$CVA_{i,t}$	0.08	0.41	-0.29	-1.59	-0.14	-0.93	0.08	0.47	-0.10	-0.63
$AGE_{i,t}$	0.05	0.99	0.08	1.65	0.02	0.47	-0.10	-1.29	0.04	0.79
$LTD_{i,t}$	-0.15	-0.46	-0.07	-0.34	-0.35	**-2.21** [a]	-0.16	-0.68	-0.12	-0.77
$SLACK_{i,t}$	-0.18	-1.37	0.30	**3.30** [a]	6.66	**1.86** [b]	0.66	1.34	-0.74	**-2.17** [a]
Adj R-sqr	0.69		0.61		0.49		0.48		0.63	
No. of Obs	133		150		155		159		146	

5.7 CONCLUSION

This chapter documents the determinants of dividend payout for a sample of 1254 Australian multinational and 994 domestic corporations over a 10-year period to 2004. It is reported that Australian multinationals have higher cash dividend and total dividend (cash and share repurchase) payout than Australian DCs. The determining factors for cash dividend and total dividend are not similar across DCs and MCs. The results indicate that the determinants of cash dividend payout ratios for Australian DCs include diversification, stock return, tax clientele, cash flow variation, profitability, firm-specific risks, firm size and financial slack . These variables also significantly explain total dividend payout ratios for DCs. For multinational corporations the determinants of cash dividend payout are tax clientele, profitability, collateral value of assets and leverage (when dependent variable is measured as of dividend payment to earnings). We also report that the determining factors vary between DCs and MCs although multinationality of a firm indicated that MCs have relatively higher dividend payout ratios; however, the result is not significant. The results also show that diversification, profitability, firm-specific risk, size, collateral value of assets and financial slack are the significant variables that explain the difference in cash dividend payout ratios while tax clientele, cash flow variability and financial slack explain the difference between Australian DCs' and MCs' share repurchase mode of dividend payments. After controlling for industry and time effect, the majority of the initial explanatory factors in explaining dividend payouts remain unchanged for both DCs and MCs regardless of different measurements of dividend payout dependent variable. The only industry that has a significant negative impact in the reduction of cash and cash and share repurchase type of dividend payout ratios is the transportation and communication industry. Further, the time variation effect shows that both DCs' and MCs' cash and total dividend has, on average, decreased over the last 10 years. However, the magnitudes of decrease between cash payment and share repurchase are not similar across DCs and MCs.

- 6 -
DIVIDEND POLICY OF MCs AND DCs – AN INTERNATIONAL COMPARISON

6.1 INTRODUCTION

The unsolved mystery of dividend payout policy has been a prime issue in the corporate finance world in the last two decades. Much of what we know about dividend policy originates from a series of interviews conducted by Lintner (1956). Lintner finds that dividends are sticky, tied to long-term sustainable earnings, paid by mature firms, smoothed from year to year, and that managers target a long-term payout ratio when determining dividend policy. This seminal work started the development of theories of dividend policy. At the theoretical level, Miller and Modigliani (1961) show that dividend policy is irrelevant to firm value. Most notable in this area is that the work of Black and Scholes (1974) on clienteles and the dividend puzzle (Black 1976). Fama and French (2001) re-ignited the debate on dividend policy showing that the proportion of U.S. firms paying dividends has fallen threefold in the past 20 years to 1999. They attribute this finding to changing firm characteristics and the propensity of firms to pay dividends. Grullon and Michaely (2002) extended the debate by showing that the change in dividend as documented by Fama and French (2001) is attributable to a change in the form of dividends from cash to repurchases and not simply a reduction in cash dividend payout. Changes in taxation and relaxations of legal restrictions on share repurchases were reasons cited for this change in the form of dividends.

Most recently, Brav et al. (2004) document that one of the key findings of Lintner (1956) still holds: dividend policy remains very conservative. However, two important differences relative to Lintner (1956) emerge. First, firms target the dividend payout ratio less than they used to, and second, share repurchases are now a very important form of payout. What is striking about this current debate on dividend policy is that it is driven solely research on U.S. firms.

Michel and Shaked (1986) investigated whether a systematic relationship exists between a firm's dividend policy and the country which it operates. They conclude that there is a difference in the payout ratios of firms in U.S. and Japan. Sawicki (2003) also finds differences in dividend policy in a sample of seven countries in Asia. Reasons cited for these differences include bank ownership of companies, growth rate of economy, and also accounting, tax and risk characteristics. La Porta et al. (2000) find that international dividend policy is influenced by the nature of legal protections provided to minority shareholders. They contend that the effective protections provided to shareholders in a common law legal environment allow minority equity investors to extract more dividends from controlling shareholders than in civil law nations where such protections are weaker.

In addition to different legal environments, countries with different tax regimes may induce corporations to adopt different dividend payout policies (Miller and Scholes (1978) and recently Bell and Jenkinson (2002)). Miller and Scholes (1978) show that in a world where both dividends and capital gains income are taxed at investor levels, the preference for dividends or capital gains depends upon relative tax rules governing the different forms of income. Bell and Jenkinson (2002) find evidence that taxation effects on dividends impact on firm values, while Pattenden and Twite (2004) find that firms changed their dividend policy with the introduction of the imputation tax system in Australia. There are many other studies documenting a link between dividend policy, firm value and tax regimes. Further, Kang and Stulz (1997) argue that institutional structure may be a reason for differences in dividend payout in different countries. Issues such as corporate governance systems within a country can induce firms to adopt a particular dividend payout policy.

In addition to firm and country factors influencing dividend policy, Dempsey, Laber and Rozeff (1993) amongst others, document evidence of an industry effect in dividend payouts. Factors driving an industry effect in dividend policy are largely unexplained, but may be explained by differences in regulation, fund flows, sales volumes and volatility of earnings across industries.

Multinational corporations operate across more than one country with often different legal, tax and institutional environments. How the determinants of dividend policy affect multinational corporations (MCs) is unknown. MCs control considerable resources and if dividend policy has an impact on their value, then the financial implications could be substantial. For example, MCs are more prone to international risks exposures (for example, foreign exchange risk and political risks). Given that previous studies have identified determinants of dividend policy from a sample of both domestic and multinational corporations without distinguishing the impact of multinationality, the existing evidence of these different types of firms behaviour of dividend policy is unknown. Most studies focus on U.S. firms. We expand the investigation by studying dividend policy from a different perspective focusing on firms in five representative countries namely, Australia, U.S., Japan, U.K. and Malaysia. We measure the relationship between dividend payouts (cash dividends and combined cash and share repurchase) and 17 different dividend theory related determinants. We also investigate industry, timing and country differences.

The rest of the Chapter 6 proceeds as follows: Section 6.2 elucidates the aim of this chapter. Section 6.3 explains the theories of dividend payouts. Section 6.4 briefly explains the determinants which will be used in this chapter. Section 6.5 presents data and models descriptions. Section 6.6 discusses the findings of the regression results and the last section 6.7 concludes the chapter.

6.2 AIM

The intent of this chapter is to provide additional empirical analysis on dividend policy literature across DCs and MCs in different countries. The studies that investigate the dividend payout of corporations across different countries are somewhat dated, use limited data, or have a narrow focus on firm types (Rajan & Zingales, 1995). Therefore, this chapter investigates the different financial and institutional traditions of DCs and MCs in Australia, Japan, U.S., U.K., and Malaysia. This helps to ascertain whether different financial and institutional traditions do impact on dividend payout decisions. Secondly, the data for most of the previous studies do not cover the period through the 1990s when there were important developments in the globalisation of financial markets (McClure, Clayton & Hofler, 1999), especially when barriers to entry to many countries were removed and it provided firms with the opportunity for global expansion. Thus, this chapter examines whether there are systematic differences in the determinants of dividend policy between DCs and MCs across countries, and whether there are additional, uniquely international, factors that may help to explain the dividend payout choice of MCs. Thirdly, given the problems potentially encountered by firms as they attempt to establish optimal global financial structures, it is important to determine whether financial norms and practices vary across countries. Therefore this study investigates the country-driven institutional characteristics that are believed to affect dividend policy for both MCs and DCs across Australia, U.S., Japan, U.K., and Malaysia.[47] These countries represent different financial structures and traditions. The U.S. and U.K. are known to follow the English tradition where there are large numbers of publicly-listed companies and hostile takeovers owing to agency conflicts are common. Japan follows the Japanese tradition where corporate decisions and restructuring are made through the involvement of universal banks and financial holdings. On the other hand, Malaysia is known to follow the Latinic tradition where corporate ownership structure can be characterised by family control, financial holdings, state ownership, cross-shareholdings, and where agency problems are internalised (Booth et al., 2001). Financial theory would suggest that in an efficient global market the financial policy of identical firms in different nations would be the same (McClure, Clayton & Hofler, 1999). If international market imperfection existed through the 1990s, dividend policy and costs may be different among similar firms in different nations and business advantages (or disadvantages) may provide profits (or costs) to firms incorporated in different countries. Fourthly, the industry effect on DCs' and MCs' dividend policy is considered. Fifthly, the relationship between financial structure and overseas operation especially for MCs has led in recent years to the development of a considerable literature that underlies its time-variant effects (Bernanke & Gertler, 1989; Greenwald & Stiglitz, 1993). Lastly, firms can distribute excess cash to shareholders through

[47] This aspect allows this thesis to compare the results with research obtained for U.S. firms and to help explain any differences.

cash dividend payments or by repurchasing their own shares. The repurchase of stock is a potentially useful adjunct to dividend policy when tax avoidance is important.

The eclipsing of dividend payments by repurchases potentially reflects two trends that have emerged over the past several decades. The first is the striking increase in firms' use of stock repurchases over the 1980s and 1990s. The second is simultaneous decline in the proportion of firms paying dividends. Specifically, during the 1990s, the share of public firms paying dividends reached an all time low of 24% (Dittmar & Dittmar, 2004). Despite this decline in the overall proportion of firms paying dividends, the aggregate volume of dividends paid has not decreased, as shown in DeAngelo, DeAngelo and Skinner (2004). However, the dividend payout ratio has declined over time. According to Brav et al. (2005), the increased amount that firms spend on repurchases and the decline in the number of firms that pay dividends indicate that corporate payout policies have changed over the past 50 years. The evidence implies that stock repurchases may be replacing dividends as the dominant from of distribution. However, it is also possible that these are two unrelated trends. Despite recent investigations of aggregate distributions, it remains unclear if repurchases are replacing dividends as primary means of distributing earnings and how the potential substitution of these distribution mechanisms impacts aggregate payout policy. For instance, Fama and French (2001) show that the non-dividend-paying firms are not the firms repurchasing stock; rather, firms that repurchase continue to pay dividends. De Angelo, DeAngelo and Skinner (2004) question the disappearance of dividends, showing that real dividends increased by 16% between 1978 and 2000. This increase is driven by substantial increases in dividends by large dividend-paying firms, the same group of firms that Fama and French (2001) show are repurchasing stock. Thus the current evidence does not show or rule out the possibility that repurchases are replacing dividends, but rather indicates that the firms that have funds to pay dividends also have funds to repurchase stock. The question remains, is there a connection between the increased use of stock repurchases and changes in dividend payout. Since both repurchases and dividends are mechanisms to distribute earnings, we examine the determinants of dividend payout for both cash dividends and cash and share repurchase. In this aspect the focus of this thesis is on answering the following questions:

- Is multinationality a significant explanatory variable in determining the payout policy for firms?
- Do additional international factors explain MCs' dividend policy decisions across countries?
- Are the determinants of dividend policy similar for both multinational and domestic corporations?
- Are the predictions of conventional dividend policy determinants improved by knowing the nationality of DCs and MCs?
- Is there any commonality between domestic and mutinational corporations' dividend policy determinants across different countries?
- Do the recent increase/decrease of cash dividend and share repurchase or the total payout policy activities differ significantly between MCs and DCs across countries?
- Are the repurchases a potential replacement for dividends across the countries? If so, then can the determinants of dividends be similar to the determinants of share repurchase across MCs and DCs and across countries?
- Is the country effect of tax system and legal system an important factor in explaining dividend policy?
- Does industry play a significant role in determining DCs' and MCs' dividend payout?
- Is dividend policy of DCs and MCs time-variant? Are the factors that affect cross-sectional variability in individual countries' dividend payout similar across countries for both MCs and DCs ?

Understanding the motivation behind the recent surge in share repurchase activity within DCs and MCs will allow us to better understand whether corporations view dividends and repurchase as interchangeable payout methods similarly across those two types of firms across countries.

This chapter has four major findings. Firstly, results show that stock return, cash flow variation, profitability and age are significant factors in explaining cash dividend payout ratios for DCs across countries. Meanwhile tax clientele, cash flow variation and profitability are significant factors in explaining cash dividend payout ratios for MCs across countries. These results are sensitive to the definition of total dividend payout ratios. Secondly, the determinants that explain the difference between DCs' and MCs' cash dividend payout ratios across countries are diversification (Australia and U.S.), agency costs and average tax ratios (U.K. and Malaysia), tax clientele (U.S. and Malaysia) and cash flow variation (Japan and Malaysia). The common determinants explaining the difference of DCs' and MCs' total dividend payout ratios changes but only for U.S. corporations. Determinants that become significant are political risks, stock return, profitability and age. Thirdly, controlling for country effects shows that firms operating under an imputation tax system (Australia and U.K) and common law environments (Australia, U.S., U.K. and Malaysia) pay comparatively higher dividends relative to firms operating in a classical tax system (U.S., Japan and Malaysia) and civil law environment (Japan). It results also show that MCs operating in an imputation tax system and common law regime pay significantly lower dividends relative to the DCs counterparts. Fourthly, Lintner's (1956) model is considered to investigate the difference in speed of adjustment in cash dividends towards a target level between DCs and MCs across the five sampled countries. The results suggest that MCs in Australia, U.S. and Malaysia adjust their target cash dividend payout ratios faster than their DCs counterparts. The opposite holds for Japanese and U.K. MCs.

6.3 DIVIDEND THEORY

6.3.1 21st Century View

During the last two decades of the 20th century, the propensity of U.S. companies to pay cash dividends declined significantly (Fama & French, 2001; DeAngelo, DeAngelo & Skinner, 2004; Dittmar & Dittmar, 2004; Brav et al., 2005). The trend away from cash dividends accelerated during the late 1990s, leading some researchers to conclude that dividend policy was shifting in a very fundamental way. Grullon and Michaely (2002) argue that the disappearance of cash dividends is just a mirror image of share repurchase which is believed to be a substitution of a form of cash dividend payment. They show that share repurchases have not only became an important form of payout for U.S. corporations, but also that firms finance their share repurchases with funds that otherwise would have been used to increase dividends. They also find that young firms have a higher propensity to pay cash through repurchases than they did in the past and that repurchases have become the preferred form of initiating a cash payout. Although large, established firms have generally not cut their dividends, those firms also show a higher propensity to payout cash through repurchases.

6.3.2 Cash Dividend Versus Repurchase

From a tax perspective, there is an obvious incentive for corporations to substitute share repurchases for dividends because capital gains are taxed at more favorable rates than ordinary income. Although the *Tax Reform Act 1986* in the U.S. greatly reduced the relative tax advantage of capital gains, the gap between the top marginal rate on ordinary income and the marginal rate on capital gains is still positive and significant (Grullon and Michaely, 2002). In addition, share repurchases have the advantage of allowing investors to postpone the realisation of capital gains and thus payment of taxes.

6.3.2.1 Disappearance of Dividends

The predictions of the various payout theories are not uniform on the subject. For example, John and Williams (1985), Bernheim (1991), and Allen, Bernardo and Welch (2000) conclude that management uses dividends, as opposed to share repurchases, to signal the firm's quality. Thus, according to these theories, dividends and repurchases are not interchangeable. On the other hand, Miller and Modigliani (1961), Bhattacharya (1979), Easterbrook (1984), Miller and Rock (1985), and Jensen (1986) imply that it is the payout (as either dividends or repurchase) that can be used to signal undervaluation or to reduce agency conflicts. Thus, substitution of repurchases for dividends would be consistent with those theories.

Most of the signalling models entail that dividends and repurchases are perfect substitutes. For example, in Bhattacharya (1979) the signalling cost is the transaction cost associated with raising new capital, and in Miller and Rock (1985) it is the cost of reducing investments. Neither is related to the choice of payout. An exception is the John and Williams (1985) model, in which the higher taxes on dividend are the costs of the signal. This model suggests that share repurchases and dividends are not interchangeable.

Allen, Bernardo and Welch (2000) develop a model in which share repurchases and cash dividends are not substitutes because the cash dividend payout method attracts institutions. They further argue that institutional investors are more likely to discover whether a firm is overvalued or undervalued because institutions have better information-gathering abilities and are also better monitors. Since institutions prefer cash dividends, only undervalued firms want to be monitored (or signal they are undervalued); thus, these are the firms that will pay higher dividends. This signalling equilibrium is not achieved with share repurchases.

Recently DeAngelo et al. (2004) argue that the decrease can be explained by the changes in firms' characteristics in the last twenty-five years. However, they suggest, changes in profitability can explain about 36% of the trend in dividend payers. They argue changes not related to firm characteristics can explain about 44% of the trend in dividend payers. A possible explanation to this effect is the catering theory of Baker and Wurgler (2004).

Baker and Wurgler (2004) propose a new theory of dividend policy – catering theory. They argue that investors' demand for dividend-paying stocks is time-varying, thereby causing the relative prices of dividend-paying and non-dividend-paying stocks to fluctuate (assuming arbitrage limits). As a result, managers cater to investor demand for dividends by paying dividends when investors place a premium on dividend-paying stocks, and vice versa. Consistent with their theory, Baker and Wurgler (2004) report empirical evidence that aggregate dividend initiations are positively related to their measure of dividend premium, and also report that the dividend premium is related to the propensity to pay dividends documented in Fama and French (2001).

6.3.2.2 Reappearance of Dividends

On the one hand, dividends are bad because (as pointed out in Black, 1976) there appear to be negative tax connotations to dividends. On the other hand, paying dividends might limit the resources managers can waste and thus serve a useful bonding role (Jensen, 1986). During much the 1990s many firms quit paying dividends. This was well documents by Fama and French (2001). However, while some are arguing dividend is disappearing mainly due to increase in share repurchase activities and then possibly different firm's characteristics over the past years, some argue that dividend policy is shifting in a very fundamental way – the trend appears to have reversed. Recently, Julio and Ikenberry (2005) have found that U.S. firms have returned to paying dividends. They report that among all U.S. industrial firms (i.e. excluding financials), 32% paid a positive dividend in 1984.

Although one might hesitate to read too much into what may be a brief change in an otherwise downward trend, the evidence indicates a material reversal in dividend policy by corporate America. One wonders whether earlier notions of the death of dividend policy were not perhaps premature. As to why dividends appear to be staging a comeback, among the possible explanations Julio and Ikenberry (2005) suggested the following five reasons:

- The tax policy change in U.S. for dividends vs. capital gains. Tax cut on dividends in 2003 reduced from 38.1% to 15%, but did not eliminate or take advantage of dividends which pay less tax.
- Dividends can be used to signal the quality of earnings. This became particularly important in the post-Enron world.
- Dramatic increase of new firms during the 1990s. The 1990s were a time when there were unusually good investment opportunities. Thus, firms conserved cash to take advantage of these investments.

- Firms that survived the fallout of the high-tech collapse are now more mature and a lifecycle hypothesis would suggest they would then begin paying more dividends. Large and old firms with limited growth prospects may be choosing to signal confidence to investors by shifting payout in favour of dividends to stay compatible with the new firms' entry. Grullon, Michaely and Swaminathan (2002) points out the important linkage between dividends change and firm maturity.
- Investors wanted dividends and thus firms are just catering to their investors' desires. It is hard to understand the fundamentals behind what causes investor demand for cash dividends, though it is hard to deny the possibility that if investor demand for dividends for some reason increased abruptly in recent years, one naturally expects well-intentioned managers to respond in kind.

Until 1989, Australian companies were prohibited from undertaking share buy-backs. In 1987 the Companies and Securities Law Review Committee published its report titled *A Company's Purchase of Its Own Shares* in which it recommended that the law be amended to allow share buy-backs. This occurred in 1989. The regulation permitted five types of buy-backs with each type subject to different regulations. Among the mandatory requirements imposed under this legislation were requirements including changes to the company's constitution before initiating buy-back programs, detailed disclosure requirements pertaining to the buy-back, imposition of stringent limits on the proportion of shares that could be repurchased, stringent shareholder approval requirements, etc.

These rigid requirements contrasted with the less regulated environment for buy-backs in the United States. State corporations statutes typically expressly empower companies to purchase their own shares with few restrictions.[48] It would seem that the effect of this detailed regulation, which imposed high transaction costs on companies wishing to undertake buy-backs, resulted in few buy-backs being undertaken by Australian companies.

[48] See, for example, section 160 of the Delaware Law of Corporations and Business Organizations.

Rau and Vermaelen (2002) conclude that the level of open market repurchase activity in the UK appears tiny in comparison to that reported for the US. They hypothesise that this low repurchase volume is attributable to regulatory restrictions that reduce the opportunity for firms to use open market buybacks to take advantage of an undervalued share price. Consistent with a less pronounced underpricing effect, they find that the average stock market reaction to UK repurchase announcements, while positive, is less than half the level reported by comparable US studies. Further, in contrast to the results reported by Ikenberry et al. (1995) for the US, RV find no evidence that UK repurchase announcements are either preceded by significant negative excess returns or followed by significant positive excess returns. With the regulatory environment in the UK apparently denying companies the chance to exploit underpricing opportunities, RV's results suggest that the majority of repurchase activity is tax driven. In particular, they document that the volume of repurchase completions peaked between September 1994 and October 1996 when a loophole in the tax code allowed pension funds to earn tax credits on share repurchases (Oswald & Young, 2004). Finally, the rules and regulation on share buy back in Japan and Malaysia do not have any special rules and regulations. They both follow standard share repurchase activity in their corporate governance system.

Our aim is to investigate whether analysing dividend policy using different definitions at contemporaneous level basis reveal any important characteristics of dividend payout policy across MCs and DCs across countries.

6.4 DIVIDEND DETERMINANTS

The determining factor that has been discussed in the previous chapter (Chapter 5) will be employed in this chapter with an exception of one variable deduction and that is *SLACK*. The *SLACK* variable is excluded as there is not enough observation available across countries to include this variable. In addition to the determinants of dividend payout ratios, we also consider whether international difference of a country's economy and structure, legal system and tax regime are important in explaining the cross-sectional variation of dividend payments.

6.4.1 The Dividend Policy and Country-specific Variables

6.4.1.1 International Differences – Economic and Structural

Michael and Shaked (1986) argue that country may influence corporate dividend policy. They argue that because of structural characteristics of a country, in particular differences in capital markets mechanism and/or in the structure of the country's financial institutions, it is likely that corporations in one country will be differently leveraged than their counterparts in other countries. They also conduct country analyses for Japan and the United States to determine if a systematic relationship exists between: (i) a firm's dividend policy and its industry; and (ii) a firm's dividend policy and the country in which it operates. Using annual data from 1977 to 1981 (16 industries with 13 firms in each country), they find that: (i) both across industry stock returns and dividend payout ratios are different in the U.S. and Japan; and (ii) the stock returns of the various industries in the U.S. are higher than those of their Japanese counterparts; but (iii) the dividend payout ratios of the sampled industries in the U.S. are lower than those of the comparable Japanese industries.[49] Glen et al. (1995) investigate dividend policy and behaviour in the emerging stock-market countries, considering the aggregate stock market.[50] They find that firms' dividend policies in emerging markets are influenced by a number of factors. Firms in different countries have different dividend policies because of different growth rates, tax rates, accounting systems, shareholders' preference toward dividends, structure of industries, regulations, inflation rates, and so on. Firms in emerging markets are less concerned with volatility in dividends over time than firms in developed countries. Further, Foerster, Prihar and Schmitz (1996) argue that stock returns are a within-the-equity market measure of economic health. According to the authors, high stock returns relative to equity prices suggest that the public does not view economic growth as probable. That is, economic agents perceive present

[49] Since the authors expect lower dividend payout ratios in Japan because Japan's financial systems stimulate a long-term orientation in general, they provide five possible explanations for the reported results. For example, "the accounting, tax and risk characteristics in Japan are somewhat different from those in the U.S. This may provide an additional explanatory factor for the high payout ratios prevalent in Japan". For further details, see Michael and Shaked (1986).

[50] The sample of emerging markets is Chile, India, Jamaica, Mexico, Philippines, Thailand, and Turkey.

and future economic prospects as poor and bid down equity prices relative to current dividends. Therefore it is important that we control for this issue in our regression.

6.4.1.2 International Differences – Legal Regime

Evidence supporting differences in the agency costs across countries is provided in La Porta, Silanes and Sleifer (2002), which compares shareholders relationships in 27 countries in 1995 and concludes that different ownership patterns significantly impact the agency problems of the firm. Their finding suggests that controlling shareholder pursue policies which benefit them at the direct expense of minority shareholders. Shliefer and Vishny (1986) and Allen, Bernado and Welch (2000) find that institutional investors prefer to own shares of firms making regular dividends payments, and argue that large institutional investors are more willing and able to monitor corporate management than are smaller and more diffuse owners. Further, they argue that dividend policies can be shaped to attract institutional investors, who can in turn provide monitoring services. For the U.K., Short, Zhang and Keasey (2002) examine three alternative dividend models, and show that dividend payout is positively related to institutional ownership. La Porta et al. (2000) compare corporate dividend policy across 33 countries. According to the authors, dividends are an outcome of effective legal protection of shareholders, which enables minority shareholders to extract dividend payments from corporate insiders. They argue that a country's legal system is correlated with corporate dividend payouts. Empirically, they find that dividend policies vary across legal regimes in ways consistent with a particular version of the agency theory of dividends. Specifically, firms operating in countries with better protection of minority shareholders (common law countries) pay higher dividend payouts than do firms in civil law countries. They also find that dividend payouts are negatively related to sales growth in the sample of firms from civil law countries. These finding suggest that an effective legal system allows investors to pressure managers to disgorge dividends when the firms do not have good investment opportunities. La Porta et al. (2000) offer evidence that U.S. laws protecting the rights of minority shareholders are associated with higher dividend payout ratios, which is consistent with the use of dividends to control managerial actions. In our sample, Japan follows civil law and the other four countries (U.S., U.K., Australia and Malaysia) follow common law.

In light of La Porta et al.'s findings, we expect the impact of the other explanatory factors under consideration in this paper to be different depending on whether firms are located in common law or civil law countries. Specifically we hypothesise that the impact of agency costs and investment opportunities on dividend payments may be relatively weak in countries where legal protection of investors is poor. This is because outside shareholders in those countries may not be able to force managers to payout excess cash even if agency conflicts are great or firms do not have good investment opportunities. This effect will be captured by our analysis through dichotomous variable.

6.4.1.3 International Differences – Tax Regime

Tax considerations have obvious potential to influence dividend payments to common shareholders, since dividends trigger tax obligations that might otherwise be deferred or avoided. The treatment of dividends is different in imputation tax systems as opposed to classical tax systems. For example, under imputation tax system the curse of double taxation is eliminated. Double taxation of dividends occurs when both a company and a shareholder pay tax on the same income. The company pays taxes on profits and subsequently distributes a dividend out of their after-tax profits. Shareholders must then pay tax on the dividend received. The tax imputations indicate to the government (tax authorities) that the company issuing the dividend has already paid a portion of the tax due. The shareholder is able to reduce the tax paid on the dividend by the amount of the tax imputation credits.

Australia and U.K. follow an imputation tax system while U.S., Malaysia and Japan pursue a classical tax system. In general, for Japanese corporate tax purposes, capital gains are not taxed separately. Such gains are treated as ordinary income to which normal tax rates apply. Dividends distributed from domestic corporations are subject to a 20% withholding tax, unless a tax treaty modifies the rate. For U.K., capital gains on chargeable assets are taxed at the normal corporation tax rate. Until 6 April 1999, U.K. had a partial imputation system of corporation tax. For dividends paid before 6 April 1999, a company making a distribution paid one fourth of the distribution as advance corporation tax (ACT). The ACT paid was offset against corporation tax liabilities, subject to detailed rules. However, the ACT system was abolished for dividends paid on or after 6 April 1999 and replaced by the quarterly instalment payment system. Companies with surpluses of ACT as of 6 April 1999 may carry forward the ACT and set it off against profits in accordance with the rules that were in effect before the abolition of the ACT system. However, this setoff is limited through a system of "shadow ACT." In conjunction with the abolition of ACT, for dividends paid on or after 6 April 1999, the tax credit attaching to dividends is reduced to one ninth of the net dividend, and tax credits are no longer repayable to U.K. shareholders. Under several of the U.K.'s double tax treaties, a foreign shareholder in a U.K. company may still claim payment of part or all of the tax credit repayments which continue to be available to foreign shareholders if so provided in the relevant treaty. However, effective from 6 April 1999, the size of the benefit decreases dramatically. In most cases, the benefit is eliminated or reduced to a negligible amount. Dividends received from U.K. resident companies are not subject to further U.K. taxation in the hands of the U.K. recipient company. U.K. resident shareholders other than companies are subject to income tax on the distribution received plus the deemed tax credit. Capital gains are taxed at a maximum rate of 35% in the U.S. In general, loss may be carried back three years and forward five years to offset capital gains in such other years. Gains resulting from capital gains tax (CGT) events may be subject to tax. Capital losses are calculated using the reduced cost base of assets without indexation for inflation. Capital losses are deductible only from taxable capital gains, not from ordinary income. Dividends paid by Australian resident corporations are franked with an imputation credit to the extent that Australian income tax has been paid by the corporation at the full corporate rate on the income being distributed. Application of the imputation system varies depending on the category of the recipient shareholder.[51] Finally, Malaysia and Japan follow classical tax system similar to U.S.

[51] ***Resident Corporate Shareholders:*** Under the imputation tax system, companies receiving franked distributions will gross up the amount received by the amount of the franking credit on the distribution. This credit equals the tax paid by the paying entity. The grossed up amount will be included in the assessable income of the company. The company is entitled to a tax offset (franking rebate) that may be used against tax payable. The tax offset is equal to the amount of the franking credit on the distribution. A corresponding credit equal to the amount of the gross-up will be creditable against corporate income tax payable on the distribution or other income.
Resident Individual Shareholders: The shareholder includes the dividend received plus the full imputation credit in assessable income. The imputation credit can be offset against personal tax assessed in the same year, up to the amount of tax payable. Excess credits relating to dividends paid are refunded to the shareholder.

Finally, tax considerations influence the choice of dividend payout by foreign affiliates of multinational corporations (Desai, Foley and Hines, 2005). In addition to the domicile country's tax system, multinationals' foreign affiliates are exposed to the foreign tax countries tax regime. Our multinationality measurement will incorporate this effect.

6.4.2 Dividend Policy and Other Issues

6.4.2.1 Industry

Industry dummies are included in regressions (Model II) to account for differences in asset structure, accounting practices, government regulation and competitiveness, each of which may affect corporate governance and firm valuation.

6.4.2.2 Timing

Similarly, yearly dummy variable and incremental year factor considered to verify any time effect on dividend payout across DCs and MCs and across firms.

6.5 DATA AND METHODOLOGY

We follow the usual practice of excluding financial institutions because of their unique structure, regulatory requirements, and accounting standards. There are occasionally slight differences in the way company names appear in Osiris, Compustat and Datastream data sets. Because much of the firm-level data originate from financial statements based on accounting practices that vary across countries, it is difficult to directly compare data. However, one of the key distinguishing characteristics in legal regimes is accounting standards; thus, to some extent, the legal regime variable controls for their differences. All dependent variables and independent and variables are detected from any statistical misspecifications and have been winsorise at the

Nonresident Shareholders: Dividends paid or credited by residents are generally subject to a final 30% withholding tax (unless the rate is reduced by a tax treaty), deducted at source on the gross amount of the dividend. To the extent that dividends are ranked, they are free from dividend withholding tax. No refund of an imputation credit is available.

1st and 99th percentile to reduce the impact of outliers. The number of observations for DCs and MCs are the same as Chapter 4.

In this chapter multiple linear regression procedures is decided to be appropriate to apply in the proposed models. Therefore this chapter adopts four main models to explain DCs' and MCs' dividend payout determinants. This study uses both in a univariate and multivariate analysis. Univariate analysis will include Mann-Whitney tests, analysis of 2-way variance, correlation and factor analysis. Multivariate analysis will employ ordinary least square regression method with heteroscadastic adjusted coefficient (HAC) regression results.

6.5.1 Model I

$$\begin{aligned} DIVC_{i,t}^{*} = {} & \beta_0 + \beta_1 DIVER_{i,t} + \beta_2 FX_{i,t} + \beta_3 PR_{i,t} + \beta_4 AGC_{i,t} + \beta_5 FCF_{i,t} + \beta_6 GROW\_MB_{i,t} \\ & + \beta_7 GROW\_PT_{i,t} + \beta_8 SR_{i,t} + \beta_9 ATR_{i,t} + \beta_{10} TAX\_CLTL_{i,t} + \beta_{11} CFV_{i,t} + \beta_{12} PROF_{i,t} \\ & + \beta_{13} BETA_{i,t} + \beta_{14} SIZE_{i,t} + \beta_{15} CVA_{i,t} + \beta_{16} AGE_{i,t} + \beta_{17} LTD_{i,t} + \varepsilon_{i,t} \end{aligned}$$

Model I represents the multivariate regression for DCs' and MCs' dividend payout determinants. Model I assumes that DCs and MCs payout ratio is determined by 17 variables. This model is performed on a sample of DCs and MCs across Australia, U.S., Japan, U.K. and Malaysia over 1994-2005. The variables in Model I are as follow:

*DIVC**	= Cash dividend (* represents that total dividend (comprised of cash dividend and share repurchase) also use same regression)
DIVER	= Diversification
FX	= Foreign exchange risk
PR	= Political risk
AGC	= Agency Costs
FCF	= Free cash flow
GROW_MB	= Growth for market to book value
GROW_PT	= Growth for past
SR	= Stock return
ATR	= Average tax rate
TAX_CLTL	= Tax Clientele
CFV	= Cash flow variation
PROF	= Profitability
BETA	= Firm specific risk (De-geared beta)
NDTS	= Non-debt tax shield
SIZE	= Total assets

CVA	=	Collateral value of assets
AGE	=	Firm's age
LTD	=	Long-term debt

age, size, collateral value of asset, agency costs, operational risk, firm-specific risk, long-term debt, free cash flows, growth, profitability, proportion of tax to profit, political risk, foreign exchange risk and diversification.

6.5.2 Model II

$$\begin{aligned}DIVC_{i,t}^{*} &= \beta_0 + \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 PR_{i,t} + \beta_5 AGC_{i,t} + \beta_6 FCF_{i,t} + \beta_7 GROW\_MB_{i,t} \\ &+ \beta_8 GROW\_PT_{i,t} + \beta_9 SR_{i,t} + \beta_{10} ATR_{i,t} + \beta_{11} TAX\_CLTL_{i,t} + \beta_{12} CFV_{i,t} + \beta_{13} PROF_{i,t} \\ &+ \beta_{14} BETA_{i,t} + \beta_{15} SIZE_{i,t} + \beta_{16} CVA_{i,t} + \beta_{17} AGE_{i,t} + \beta_{18} LTD_{i,t} + \varepsilon_{i,t}\end{aligned}$$

Model II is a slight modification of Model I and uses a pooled sample of DCs and MCs together. The common 14 variables are similar to Model I except $\beta_{15} MULT_{it}$. This additional factor of $\beta_{15} MULT_{it}$ is introduced to identify whether being a multinational has any additional explanatory power to determine the dividend payouts. Even though Model I directly captures the effect of the MCs-related issues, there are other factors (e.g. inflation, interest rates, subsidiaries geographical related issues, economic growth and market efficiency etc.) that may also explain the multinationals' dividend payout which my dataset is unable to create any variables to capture. Therefore, the variable $\beta_{15} MULT_{it}$ attempts to incorporate any additional information for MCs' debt payouts that is not captured by using Model I. Therefore, after pooling the sample of DCs and MCs, the additional variable $\beta_{15} MULT_{it}$ takes a value of unity when the corporation is a multinational, otherwise it is 0 (domestic corporations).

6.5.3 Model III

$$
\begin{aligned}
DIVC_{i,t}^{*} = \beta_0 &+ \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 PR_{i,t} + \beta_5 AGC_{i,t} + \beta_6 FCF_{i,t} \\
&+ \beta_7 GROW\_MB_{i,t} + \beta_8 GROW\_PT_{i,t} + \beta_9 SR_{i,t} + \beta_{10} ATR_{i,t} + \beta_{11} TAX\_CLTL_{i,t} \\
&+ \beta_{12} CFV_{i,t} + \beta_{13} PROF_{i,t} + \beta_{14} BETA_{i,t} + \beta_{15} SIZE_{i,t} + \beta_{16} CVA_{i,t} + \beta_{17} AGE_{i,t} + \beta_{18} LTD_{i,t} \\
&+ \beta_{19} M\_DIVER_{i,t} + \beta_{20} M\_FX_{i,t} + \beta_{21} M\_PR_{i,t} + \beta_{22} M\_AGC_{i,t} + \beta_{23} M\_FCF_{i,t} \\
&+ \beta_{24} M\_GROW\_MB_{i,t} + \beta_{25} M\_GROW\_PT_{i,t} + \beta_{26} M\_SR_{i,t} + \beta_{27} M\_ATR_{i,t} \\
&+ \beta_{28} M\_TAX\_CLTL_{i,t} + \beta_{29} M\_CFV_{i,t} + \beta_{30} M\_PROF_{i,t} + \beta_{31} M\_BETA_{i,t} \\
&+ \beta_{32} M\_SIZE_{i,t} + \beta_{33} M\_CVA_{i,t} + \beta_{34} M\_AGE_{i,t} + \beta_{35} M\_LTD_{i,t} + \varepsilon_{i,t}
\end{aligned}
$$

Model III is a further extension of Model II. Model III adds additional interacting dummy variables for each of the fourteen common explanatory variables. The purpose of this model is to differentiate the significance of slope difference in each of the common fourteen variables between DCs and MCs. This model is designed to encapsulate additional information, which is the difference of DCs' and MCs' dividend payouts level determinants' explanatory power to verify the payouts level decision.

6.5.4 Model IV

The final equation of the multivariate model is as follows:

$$
\begin{aligned}
DIVC = \beta_0 + \beta_2 D_{MC} + \beta_1 \sum X_{Firm} + \beta_4 \sum X_{Country} + \beta_5 Imputation\_Tax + \beta_6 Common\_law \\
\text{or } \beta_4 \sum X_{industry} \text{ or } \beta_5 \sum X_{Time} + \varepsilon_{i,t}
\end{aligned}
$$

For an intensive investigation of dividend payout and its determinants for DCs and MCs, we apply regression modelling technique. Generally, there is no consensus model of dividend payout behaviour. In its absence, this Model IV fits the data to some alternative models that include multinational corporations' effect. This model is a further extension of Model II. Theoretical research shows that dividend policy is influenced by firm, industry and country factors. Firm factors include size or transaction costs, growth, profitability, agency costs, collateral value of assets and firm risks. Industry factors include industry regulations, growth levels, profitability and risks. Dividend policy is also influenced by taxation policy, legal systems and broader economic conditions that are country-specific. In relation to the determinants of payout policy for MCs, very little is known. The number and size of MCs has grown substantially over the past few decades and the effect these organisations have on payout policy is unknown.

6.5.5 Model V

Lintner's (1956) model is applied within the DCs and MCs sample framework. The empirical work on corporate dividend policy has been significantly influenced by Lintner's (1956) model of dividends as the outcome of a partial adjustment process. Based on his interviews with corporate executives, Lintner hypothesised that firms adjust dividends to "desired" levels that are determined by current profits. He specifies a model of the form:

$$\Delta D_{it} = a_i + c_i(D^*_{i,t} - D_{i,t-1}) + \mu_{i,t}$$

in which $\Delta D_{i,t}$ is the first difference or change in dividend payments, and D_t and D_{t-1} are the amounts of dividends paid in the years identified by the dating subscripts *t*. The subscript *i* identifies the individual company and D^*_{it} represents the dividends which the company would have paid in the current year if its dividend were based simply on its target payout ratio which is determined by dividend payout determinants. The parameter a_i is a firm-specific constant and this constant will be zero for some companies but will generally be positive to reflect the greater reluctance to reduce than to raise dividends. c_i is the speed of adjustment factor which indicates the fraction of the difference between the "target" dividends (D^*_{it}) and actual payment made in the preceding year $D_{i,t-1}$, which the company will intend, on average, to reflect in its current year's dividend as an increase (or decrease) from previous year's payment. μ_{it} an error term which represents the discrepancy between the observed change $\Delta D_{i,t}$ and that expected on the basis of other terms in the equation. Note that Lintner specifies $D^*_{it} = r_i E_{it}$, in which r_i is a firm-specific target payout rate, and E_{it} is the firm's net earnings in year t. However, we slightly modify Lintner's original equation and replace D^*_{it} for the estimated values which can be obtained using equation Model I.

By using the above model, Lintner (1956) finds that 85 percent of the variation in the dividends is explained. The model is the foundation of a number of subsequent empirical dividend studies.[52] However, the effect of multinationality has not been considered in any of the above analysis. The results would be empirical evidence and therefore no pre-assumed hypothesis is constructed. Therefore, mainly following Lintner's model with slight alteration mentioned above, we investigate whether the DCs and MCs follow stable dividend changes and most importantly whether there is any difference in DCs' and MCs' dividend stability or partial adjustment of dividends towards their target level across five sample countries.

The analysis is designed in the following manner. Firstly, a preliminary analysis is conducted to observe the payout behaviour across years across five countries. Secondly, an intensive analysis of regression models that has been proposed is utilised on the level of dividend payout ratios. Thirdly, the planned models, especially Model II will be utilised in addition to Lintner's (1956) model for the firms' time on a DCs and MCs sample to investigate the difference of dividend payout ratios and the impact of its corresponding determinants across five countries. Finally, a conclusion is drawn.

6.6 PRELIMINARY RESULTS

Table 6.1 provides details of the average annual level of cash dividend payments and share repurchase and total dividend payout for the five countries for each year from 1995 to 2004. From this table a number of trends in payout ratios can be seen and it is also clear that cash dividend and share repurchase payout ratios vary considerably across countries.

Over the period of 1995 to 2004, the cash dividend payout ratios for Australian DCs are generally lower than the Australian MCs. The ratio of cash dividend for Australian MCs ranges

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[52] Tax considerations may influence the level of D^*_{it}, and thereby influence dividend payouts. Feldstein (1970), King (1971), and Porteba and Summers (1985) find a negative correlation between dividend taxes and dividend payouts in aggregate quarterly British time series. Porteba (1987) reports similar results for annual aggregate U.S. data. It should be noted, however, that other studies - such as Auerbach (1982) and Marsh and Merton (1987) - that do not include the tax cost of paying dividends, also report reasonably good fits for aggregate annual U.S. data.

from 0.513 to 0.351 as opposed to DCs ratios which range from 0.446 to 0.270. The cash dividend payments decreased for both Australian DCs and MCs over the years. For example, cash dividend payment for DCs decreased from 0.421 in 1995 to 0.270 in 2004. Similarly, the cash dividend payments for Australian MCs decreased from 0.464 in 1994 to 0.356 in 2004. Share repurchase activity for Australian DCs appears visible during 1997 to 2000 while similar activity is observed for Australian MCs during 2000 to 2004. Nevertheless, the cash dividend payment is far more prominent than share repurchase type of dividends payments to their shareholders in Australia.

The cash dividend payments and share repurchase activity is rather noticeable in the U.S. in comparison to other four countries in the sample. There is a clear distinction of U.S. DCs' cash dividend payments decreasing trend, falling from 0.350 in 1995 to 0.274 in 2004 which is nearly a 21% drop over ten years, while the share repurchase activity increased from 0.165 in 1995 to 0.279 in 2004 which is approximately 40% increase over ten years. Similar pattern of cash payment and share repurchase are also observed in U.S. MCs, although share repurchase activity is relatively more pronounced in MCs.

A similar behaviour of cash dividend payments across DCs and MCs in Japan is observed. Meanwhile although U.K. DCs' and MCs' cash dividend payout ratio decreased over years but no obvious share repurchase activity is detected in DCs. However, U.K. MCs appear to gradually increase the share repurchase mode of dividend payment recently.

Malaysian DCs and MCs experience a similar trend of gradual decrease in cash dividend the payments in comparison to the other four countries in the sample, but there seems to exist a strong increase of share repurchases mode of dividends payments since 1999, and every year then on a higher proportion of share repurchase is observed.

Table 6.1
Average annual cash dividend, share repurchase and total dividend payout ratios across 5 sampled countries: 1995-2004

DCs	MCs

Years	Cash Dividends	Share Repurchase	Total Dividend	Cash Dividends	Share Repurchase	Total Dividend
AU - 95	0.421	0.000	0.422	0.464	0.018	0.482
AU - 96	0.446	0.000	0.446	0.492	0.017	0.509
AU - 97	0.388	0.001	0.389	0.480	0.000	0.480
AU - 98	0.407	0.002	0.409	0.513	0.000	0.513
AU - 99	0.369	0.004	0.373	0.479	0.000	0.479
AU - 00	0.357	0.005	0.362	0.434	0.009	0.443
AU - 01	0.352	0.000	0.352	0.424	0.009	0.433
AU - 02	0.290	0.000	0.290	0.358	0.000	0.358
AU - 03	0.296	0.000	0.296	0.351	0.012	0.363
AU - 04	0.270	0.000	0.270	0.356	0.008	0.364
US - 95	0.350	0.165	0.515	0.300	0.297	0.602
US - 96	0.333	0.171	0.505	0.294	0.331	0.629
US - 97	0.348	0.175	0.527	0.285	0.336	0.627
US - 98	0.322	0.199	0.528	0.285	0.364	0.653
US - 99	0.328	0.265	0.596	0.307	0.396	0.706
US - 00	0.271	0.248	0.520	0.251	0.399	0.655
US - 01	0.271	0.255	0.529	0.271	0.363	0.635
US - 02	0.269	0.247	0.523	0.286	0.407	0.694
US - 03	0.265	0.257	0.524	0.262	0.384	0.644
US - 04	0.274	0.279	0.553	0.259	0.398	0.659
JP - 95	0.383	0.006	0.389	0.348	0.004	0.352
JP - 96	0.403	0.006	0.408	0.335	0.002	0.337
JP - 97	0.381	0.008	0.390	0.367	0.003	0.370
JP - 98	0.350	0.016	0.365	0.294	0.005	0.300
JP - 99	0.330	0.047	0.377	0.279	0.023	0.301
JP - 00	0.282	0.061	0.343	0.275	0.023	0.297
JP - 01	0.261	0.094	0.355	0.265	0.081	0.346
JP - 02	0.328	0.196	0.524	0.267	0.236	0.503
JP - 03	0.299	0.248	0.547	0.249	0.290	0.540
JP - 04	0.276	0.237	0.513	0.238	0.250	0.489
UK - 95	0.356	0.000	0.356	0.434	0.000	0.434
UK - 96	0.349	0.000	0.349	0.389	0.000	0.389
UK - 97	0.297	0.000	0.297	0.382	0.000	0.382
UK - 98	0.304	0.000	0.304	0.372	0.001	0.373
UK - 99	0.319	0.000	0.319	0.363	0.000	0.363
UK - 00	0.290	0.000	0.290	0.364	0.000	0.364
UK - 01	0.278	0.000	0.278	0.330	0.001	0.331
UK - 02	0.294	0.000	0.294	0.355	0.001	0.355
UK - 03	0.309	0.000	0.309	0.387	0.008	0.395
UK - 04	0.331	0.024	0.355	0.380	0.056	0.437
ML - 95	0.273	0.000	0.273	0.263	0.000	0.263
ML - 96	0.253	0.000	0.253	0.313	0.000	0.313
ML - 97	0.222	0.000	0.222	0.210	0.000	0.210
ML - 98	0.189	0.000	0.189	0.166	0.000	0.166
ML - 99	0.154	0.003	0.157	0.102	0.001	0.102
ML - 00	0.147	0.006	0.153	0.109	0.007	0.117
ML - 01	0.122	0.018	0.140	0.156	0.019	0.175
ML - 02	0.108	0.019	0.127	0.122	0.030	0.153
ML - 03	0.181	0.039	0.220	0.193	0.016	0.209
ML - 04	0.189	0.033	0.222	0.225	0.040	0.265

Figure 6.1 and 6.2 is graphical representation of cash dividend payouts and dividends payouts (including share repurchase) distribution across five sample countries' DCs and MCs. Figure

6.1 shows the average yearly time trends of cash dividends, share repurchase and dividends (comprised of cash and share purchase) across DCs and MCs across Australia, U.S., Japan, U.K. and Malaysia for 1995 to 2004. Alternatively, Figure 6.3 shows a direct comparison of 10 years average cash dividends, share repurchase and DCs and MCs across those five sample countries.

Figure 6.2 reveals that cash dividends and dividends for both DCs and MCs gradually decreased over the last 10 years for both DCs and MCs. It also appears that Australian DCs had almost negligible share repurchase activity while MCs had little share repurchase activities. However, it is clear from the graph that although both DCs' and MCs' dividend decreased over time, the proportion of dividends for MCs has been always marginally higher than DCs. In comparison, in the U.S. cash dividends and share repurchase for DCs have shown mirror reflection during the period of the 1990s (eg. 1995-1999) indicating higher cash dividends payments relative to share repurchase. However, from year 2000 onwards it appears that U.S. DCs slightly shy away from higher cash dividends payments and instead marginally increase the share repurchase activities mode of dividends payments since 1998. Over the last 5 years (2000-2004) both cash dividend payments and share repurchase activities across U.S. DCs are almost same as cash dividend mode of dividend payments. Lastly, the dividend policy for DCs in the U.S. appears to remain sticky over the last 10 years with an exception in 1999. A striking result can be observed for MCs in the U.S. The mirror transparency of cash dividends and share repurchase activity is clearly noticeable across U.S. MCs and the graph also shows that the share repurchase mode of dividends payments across U.S. MCs have been steadily increasing and has been higher than cash dividend payouts over the sample period. This graph is consistent with Grullon and Michaely (2002). Overall, the net dividend remains steady and sticky with a few bumps in 1999 and 2003.

The two different modes of dividends payment mode appear to have similar pattern across Japanese DCs and MCs. In the recent years (2001-2004) the share repurchase activity for both DCs and MCs increases aggressively while cash dividends payments decreased, but overall dividends payments in Japan increased by almost 25 percent over the last five years (2000-2004).

Both cash and share repurchase type dividends payments in the U.K. across DCs and MCs display that no recognisable share repurchase activity has taken place for both type of firms over the last 10 years. The main type of dividend payment mode is cash dividends and this remained relatively steady over the 10-years period.

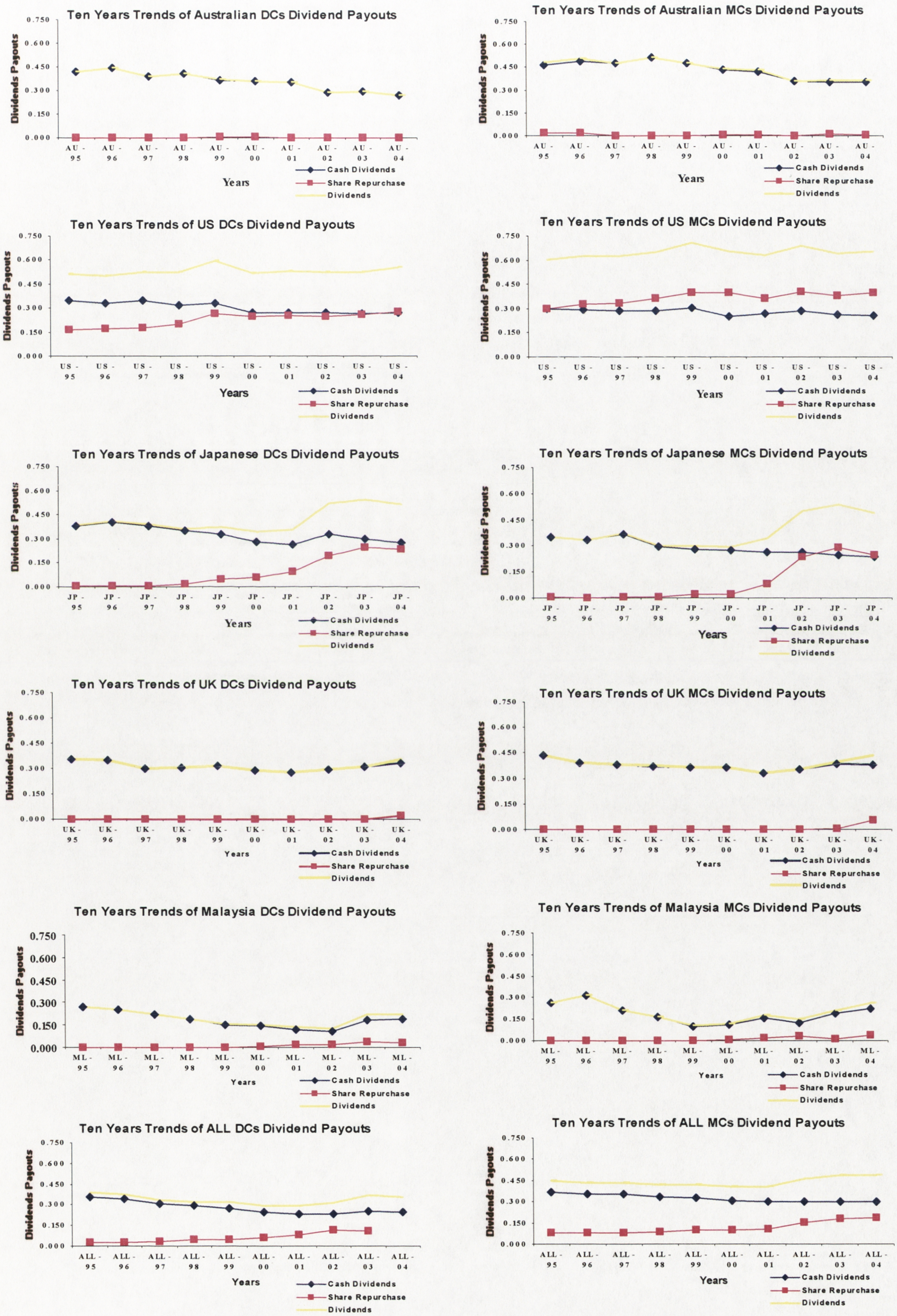
The last sample country in this study, Malaysia, shows that the cash dividends is clearly higher then share repurchase type of dividends payments across DCs and MCs. Given there is poor share repurchase activity in Malaysian DCs and MCs, it is clearly noticeable that there is no steadiness in dividend (or cash dividends in this instance) payments in either of those two types of firms (DCs and MCs).

Finally, the very last graph is drawn to show the ultimate cash dividend and share repurchase type of dividend payment modes by disregarding countries of origin. It shows that MCs have relatively high proportion of both types of dividend payments (cash and share repurchase) occurring across the last ten years. While the cash dividend for DCs slightly declined, the

counterpart cash dividend payments remained relative steady. Share repurchase activity is more prominent in MCs than DCs. Overall, in the recent years (2003-2004) the dividend payments for DCs slowly were reaching up to the level of mid-1990s (the start of my sample period) and at the same time MCs maintained steadiness on dividend payment throughout 1995-2001 and lately the dividends payments increased and have a upward trend.

Finally, Figure 6.3 presents a summary and a direct comparison of cash and share repurchase dividend payout ratios across DCs and MCs for the five sample countries over 10 years. Figure 6.3 clearly depicts that, in Australia, share repurchase activity is almost close to none within DCs and also very little for MCs. In the U.S., DCs pay slightly higher cash dividend than MCs

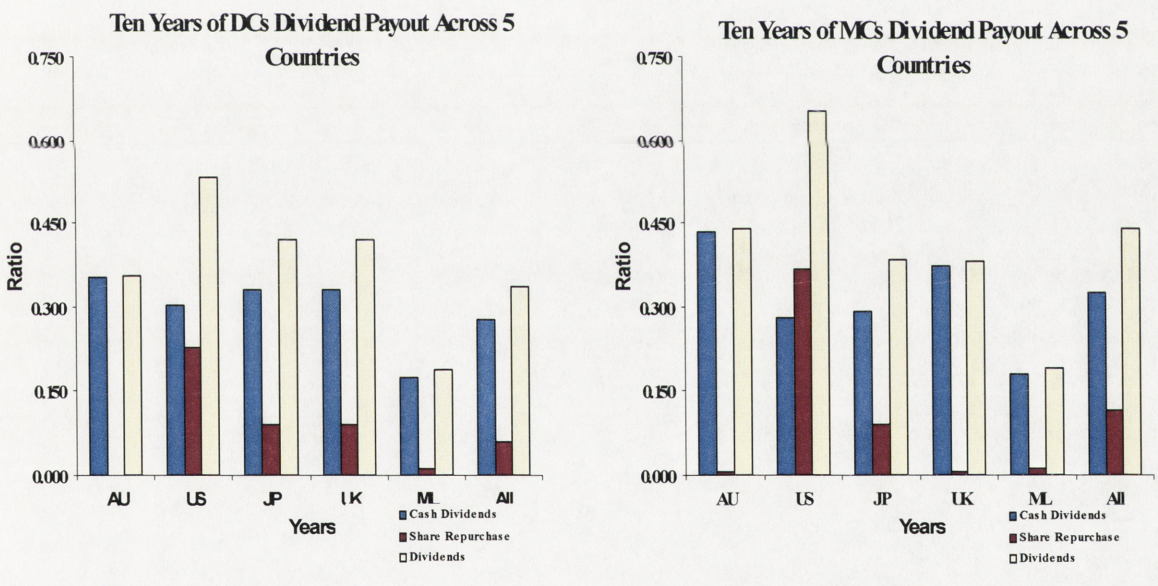
Figure 6.1
Graph of cash dividend, share repurchase and total dividend for DCs and MCs across 5 sampled countries over 10 years



and it is due to higher share repurchase conducted by MCs than DCs. However, MCs pay higher dividends than DCs which is similar to Australian DCs and MCs. As far as cash dividends is concerned U.S. and Japanese MCs interestingly appear to have similar average 10 years cash payout level but do have a distinguishable difference in share repurchase type dividend payments than U.S. MCs. Within Japanese firms, DCs pay higher cash dividends than

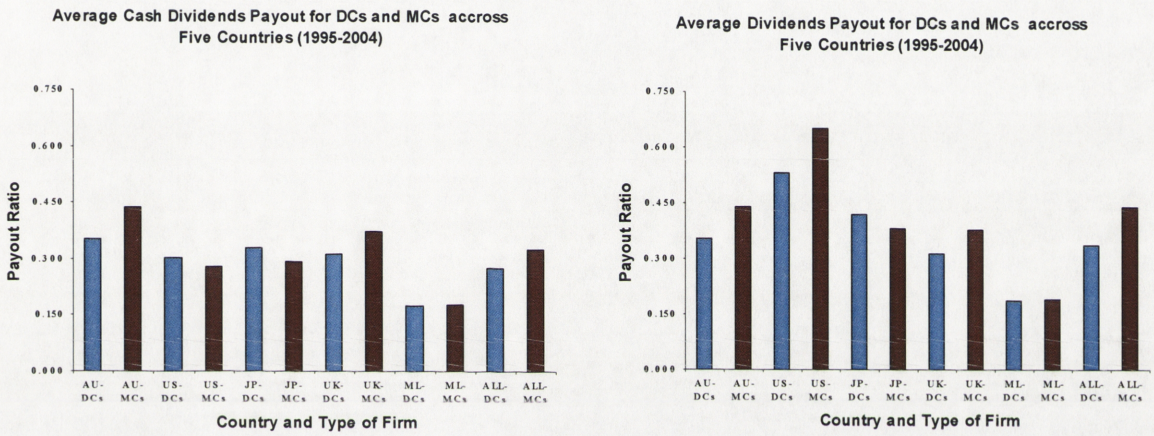
MCs and the proportion of share repurchase activity is similar across DCs and MCs. Further, cash dividend payments for U.K. MCs are higher than DCs and interestingly U.K. MCs do not appear to participate in share repurchase type dividend payments. Lastly, Malaysian DCs and MCs show the lowest dividend payments among all the sample countries. Finally, on average, MCs are involved in paying higher cash and repurchase type dividends than DCs counterparts.

Figure 6.2
Direct comparison of cash dividend, share repurchase and total dividend across DCs and MCs across 5 countries



There is a further yearly incremental effect of cash dividend across countries, especially the dividend payout of cash dividend payments to net earnings (which is the main focus of this paper). Figure 4 displays trend of dividend payout for DCs and MCs over the last 10 years. It shows that on average dividend payout for DCs and MCs are highly correlated in almost all sample countries. The graph also depicts that in most cases DCs have higher cash dividend payout ratio than DCs, especially in Australia and U.K. However, (in Figure 4: the bottom right hand corner graph), when all DCs and MCs are pooled (ignoring country of origin), it shows that MCs have higher cash dividend payment ratios than DCs and this is consistent with Hines (1996) and the discussion in the earlier graphs.

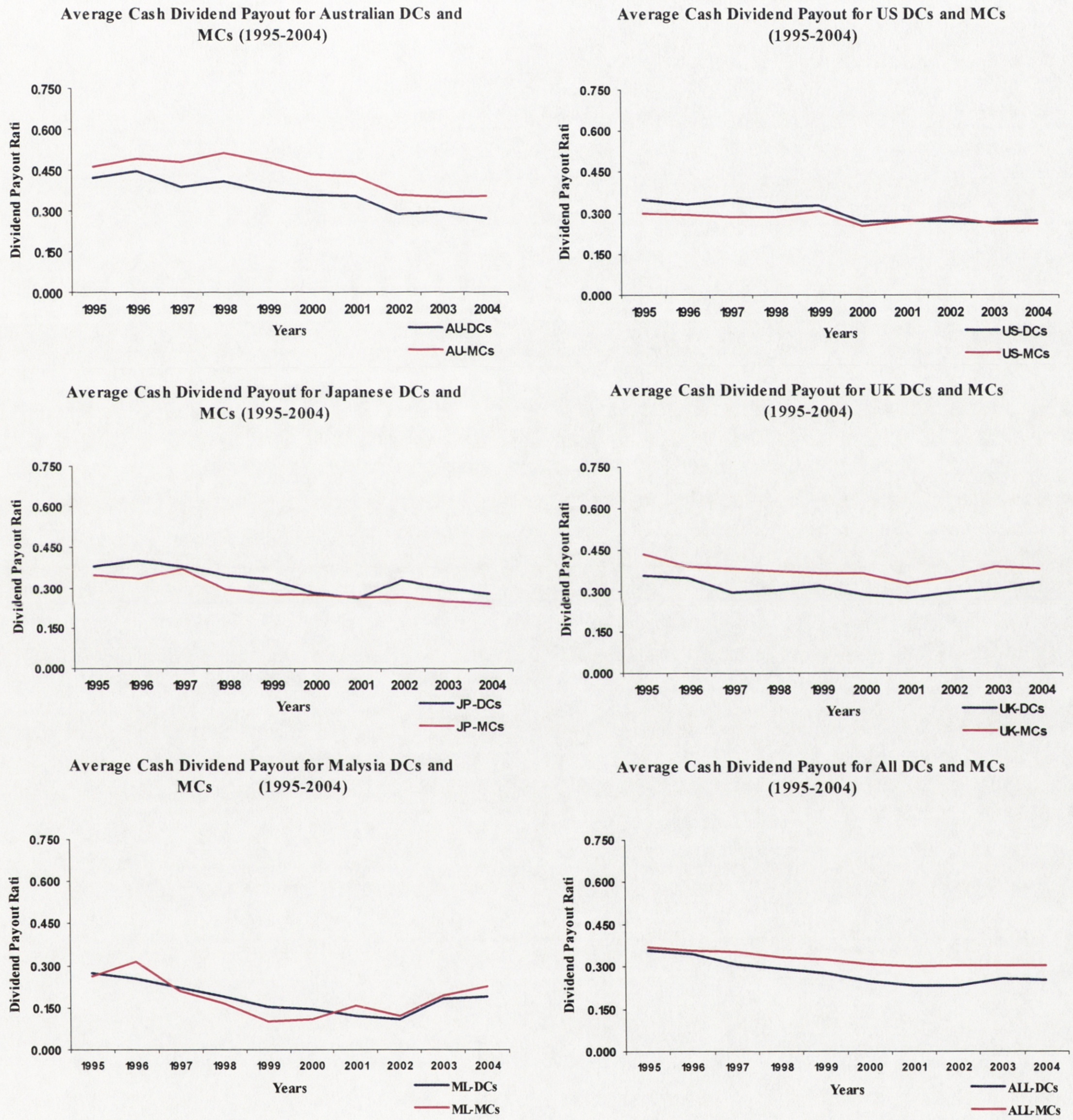
Figure 6.3
Overall cash dividend behavior for DCs and MCs across countries: Australia, U.S., Japan, U.K. and Malaysia



A t-test (mean) and Mann-Whitney (median) and F test (standard deviation) test is conducted to investigate if dividend payout ratios are different between DCs and MCs. The results are shown in Table 6.2 (cash dividend and total dividend between DCs and MCs across countries) and Table 6.3 (cash dividend and total dividend between DCs and MCs across different tax law countries and legal regimes).

In Table 6.2 Panel A shows univariate mean and median test results of cash dividends across DCs and MCs cash dividend payments while Panel B presents mean and median test results of dividends comprising of cash and share repurchase. It appears that MCs in Australia and U.K. have significantly higher average cash dividends payouts than their DCs counterparts (t=7.19 and 11.14) while U.S. and Japanese MCs present significantly lower cash dividend payments than the DCs counterparts (t=1.97 and t=5.01). Further, median test of cash dividends also mostly confirms this result except U.S. being insignificant. Overall, on average, MCs pay higher cash dividends than DCs regardless of country origin (t=14.74).

Figure 6.4
Comparison of DCs and MCs cash dividend across 5 sampled countries over 10 years



Panel B further confirms that the dividends, which are comprised of cash and share repurchase, and it states that on average MCs pay significantly higher dividends payout ratio relative to DCs and this is consistent across Australia, U.S. and U.K. (t=7.44; t=6.17; t=11.39. A similar result exists in Malaysia; however, it is insignificant.

Table 6.2
Univariate tests of cash dividend and total payout ratios between DCs and MCs across countries

Panel A – Cash Dividend Payments

Cash Dividend	AU		US		JP		UK		ML		ALL	
	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs
Mean	0.26	0.36	0.29	0.27	0.32	0.27	0.22	0.31	0.14	0.16	0.23	0.29
t Test		7.19[a]		1.97[b]		5.01[a]		11.14[a]		1.59		14.74[a]
Median	0.00	0.31	0.16	0.20	0.24	0.22	0.00	0.30	0.00	0.00	0.05	0.23
Man-Whitney		6.93[a]		0.60		3.52[a]		10.69[a]		2.78[a]		16.97[a]
Standard deviation	0.35	0.36	0.33	0.29	0.31	0.27	0.28	0.32	0.23	0.23	0.30	0.31
F Test		1.07		1.23		1.28		1.28		1.08		1.04
No of Obs	994	1254	1371	1417	1093	814	719	1469	1861	964	6038	5918

Panel B – Cash and Share repurchase (total) dividend Payments

Total Dividend	AU		US		JP		UK		ML		ALL	
	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs
Mean	0.26	0.36	0.50	0.62	0.40	0.36	0.22	0.32	0.15	0.17	0.28	0.39
t Test		7.44[a]		6.17[a]		3.81[a]		11.39[a]		1.52		20.74[a]
Cash Median	0.00	0.32	0.37	0.46	0.28	0.25	0.00	0.30	0.00	0.00	0.09	0.29
Man-Whitney		7.03[a]		5.08[a]		2.65[a]		10.93[a]		2.78[a]		20.84[a]
Standard deviation	0.35	0.37	0.51	0.60	0.42	0.38	0.29	0.33	0.25	0.24	0.37	0.43
F Test		1.12		1.37		1.21		1.31		1.09		1.34
No of Obs	994	1254	1371	1417	1093	814	719	1469	1861	964	6038	5918

Table 6.3 reports univariate test results of MCs' and DCs' cash and repurchase mode of dividends payments operating in different legal regimes and tax regimes to investigate whether there is any significant difference in cash and share repurchase type dividends payments across DCs and MCs. The result suggest that MCs operating under the imputation and classical tax system have significantly higher dividends than DCs, suggesting that MCs are in a better position to exploit the benefit of each type of tax system and manage to pay higher cash dividends than DCs counterparts (t=8.75 and t=11.90). However, MCs in common law countries pay significantly higher cash dividends than DCs while MCs in civil law countries pay significantly lower cash dividends than DCs (t=37.41 and t=5.01). Similar result also holds for total dividends. The median test results also produced similar results. Further, when net dividends are tested for significant difference between DCs' and MCs' dividends payments, it also draws the same results.

Table 6.3
Univariate tests of cash dividend and total dividend payout ratios between DCs and MCs across different tax and legal regime

Panel A – Cash Dividend Payments

Cash Dividend	Imputation Tax		Classical tax		Common Law		Civil Law	
	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs
Mean	0.26	0.33	0.22	0.28	0.10	0.22	0.32	0.27
t Test		**8.75**[a]		**11.90**[a]		**37.41**[a]		**5.01**[a]
Median	0.00	0.33	0.08	0.21	0.00	0.02	0.24	0.22
Man-Whitney		**9.51**[a]		**13.78**[a]		**32.68**[a]		**3.52**[a]
Standard deviation	0.33	0.32	0.29	0.30	0.23	0.30	0.31	0.27
F Test		1.04		1.06		1.71		1.28
No of Obs	6038	5918	6038	5918	6038	5918	6038	5918

Panel B – Cash and Share repurchase (total) dividend Payments

Total Dividend	Imputation Tax		Classical tax		Common Law		Civil Law	
	DCs	MCs	DCs	MCs	DCs	MCs	DCs	MCs
Mean	0.26	0.34	0.29	0.41	0.12	0.30	0.40	0.36
t Test		**8.85**[a]		**18.84**[a]		**43.34**[a]		**3.81**[a]
Median	0.00	0.33	0.12	0.27	0.00	0.00	0.28	0.25
Man-Whitney		**9.53**[a]		**18.30**[a]		**35.62**[a]		**2.65**[a]
Standard deviation	0.33	0.33	0.39	0.46	0.28	0.43	0.42	0.38
F Test		1.02		1.42		2.34		1.21
No of Obs	6038	5918	6038	5918	6038	5918	6038	5918

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

Panel C shows DCs operating in imputation tax system tend to pay significantly higher (t=5.44) cash dividends than DCs operating under the classical tax system. In comparison, MCs operating under the imputational tax system also pay significantly higher cash dividends than MCs operating under classical tax system (t=8.27). Similarly, DCs and MCs operating in civil law countries pay significantly (t=40.20 and t=7.88). Median test results also support the mean test results.

Panel C – Impact of Legal regimes and Tax regimes on DCs & MCs

Cash Dividend	DCs		MCs		DCs		MCs	
	Imputation	Classical	Imputation	Classical	Comm Law	Civil law	Comm Law	Civil law
Mean	0.26	0.22	0.33	0.28	0.10	0.32	0.22	0.27
t Test		**5.44**[a]		**8.27**[a]		**40.20**[a]		**7.88**[a]
Median	0.00	0.08	0.33	0.21	0.00	0.24	0.00	0.22
Man-Whitney		0.77		**6.85**		**38.88**		**14.05**[a]
Standard deviation	0.33	0.29	0.32	0.30	0.23	0.31	0.30	0.27
F Test		**19.62**[a]		**68.47**[a]		**15.71**[a]		**62.07**[a]
No of Obs	6038		5918		6038		5918	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

6.7 REGRESSION RESULTS

The results of regressing the set of explanatory variables against the payout ratio is reported in Table 6.4 for DCs and MCs across five countries. The correlation test among the variables is conducted and it shows that there is no significant multicollinearity problem.

6.7.1 Determinants of Cash Dividends and Dividends Slope Coefficient

Table 6.4 presents the determinants of cash dividends (Panel A) and cash dividend and share repurchase (Panel B). Results in these two Tables (Panel A and Panel B) assumes that the additional factors such as diversification, foreign exchange risks and political risks (*DIVER, FX* and *PR*) and other corporate dividend determinants residuals are distributed normally and independently. Further, the determining factors in Table 6.4 (Panel A and B) and Table 6.5 are essentially the same except in the latter table a dichotomous variable is used to isolate the effect of multinationality as it is believed that choosing additional variables to determine MCs' dividend payouts may not necessarily be enough to explain the full characteristics of dividend payout behaviours.

The regression coefficient of diversification (*DIVER*) shows that it is negative and significant for Australia and U.S. (t=4.43 and t=2.11) and surprisingly no significant relationship of this variable is observed for MCs in any of the sample countries. This suggests that as the DCs in Australia and U.S. expand within their home country to become larger, the strategy has a negative impact on cash dividend payments to shareholders. A possible explanation for this may be that when DCs grow through full take over activities and open a new subsidiary, it imposes constraints on the availability of excess cash which otherwise would have been used for cash dividend purposes.

The proxy of agency costs (*AGC*) is negative and significant for DCs in U.S. (t=-2.95) and MCs in U.K. and Malaysia (t=2.54 and t=-1.98 respectively). The different sign of agency costs significance supports the arguments that La Porta et al. (2000) put forward. According to the authors, dividends are an outcome of effective legal protection of shareholders, which enables minority shareholders to extract dividends payments from corporate insiders. Empirically, they find that dividend policies vary across legal regimes in ways consistent with a particular version of the agency theory of dividends. Specifically, firms operating in countries with better protection of minority shareholders pay higher dividend payouts. The negative significant results of agency costs (*AGC*) for DCs in U.S. and MCs in Malaysia suggest that as the number of shareholders increase in those countries, the cash dividend payment decreases significantly due to the increased transaction costs of external financing to those increased number of shareholders. However, the positive significant results of MCs in U.K. suggests that as the number of shareholders increases, they pay higher dividends to reduce agency costs and it is consistent with Rozeff (1982).

The free cash flow (*FCF*) of agency costs appears to have mixed sign and significant level. *FCF* coefficient is significant for Japanese DCs (t=-2.54) and U.S. MCs (t=7.95). This means that when there is an increase in cash flows in Japanese DCs, the Japanese DCs' managers have tendency to use the excess free cash flow sub-optimally and therefore it imposes a negative impact on cash dividend payments. In contrast, MCs in U.S. have positive and significant relationship (t=7.95) suggesting that as the availability of free cash flow increases, it significantly increases the cash dividend payments to shareholders.

The growth of a firm depends on: (i) the amount of resources retained and reinvested in the firm; and (ii) the rate of return that is earned on the retained earnings. *GROW_MB* variable for Japanese DCs appears to have significant positive relationship (t=1.90) with cash dividend payments while it has negative significant relationship in DCs of U.K. (t=-6.49) and MCs of Malaysia (t=-5.23). This negative significant relationship suggests that a firm's growth (investment) opportunities are negatively related to corporate cash dividend payments. This means that as DCs in U.K. and MCs in Malaysia experience substantial success and rapid growth, the firm would require large additions of capital. Therefore, growth firms may expect to pursue a low dividend payout policy since investment and dividends are linked through the firm's cash flow identity.[53] This is consistent with Rozeff (1982) and Schooley and Barney (1994) who find that dividend payout ratio is negatively related to predicted growth revenues of the firm, implying that higher growth rates in future revenues require more funds to sustain growth; thus firms pay lower dividends in order to finance further growth. These authors also find dividend payout is also negatively related to past growth revenues. However, the evidence indicates that past growth variable DCs across Japan and U.K. (t=2.67 and 2.21) and MCs in U.S. (t=1.86) have significantly positive relationship with cash dividends payouts, suggesting higher growth rates in the past do not require as much additional funds to sustain growth.

Litzenberger and Ramaswamy (1979, 1982) and Morgan and Thomas (1998) argue that dividend increases are associated with increases in stock return (*SR*) because the percentage change in stock price is typically much smaller than the percentage change in its dividend. Recently, this evidence is further documented by McManus, Gwilym & Thomas (2004). Lamont (1998) finds that stock return has a significant positive relationship with dividend payout ratios. Our result confirms the above finding for both DCs (t=3.03; 6.09, 7.34; 4.36 and 9.94) across Australia, U.S., Japan, U.K. and Malaysia and MCs (t=12.06; 9.19, 4.73 and 3.75) across all sample countries except Australia.

The dividend clientele effect originally suggested by Miller and Modigliani (1961) indicates that different groups of investors desire different levels of dividends. For example, high-tax-bracket investors will prefer stocks with low-dividend yield and low-bracket investors will prefer high-dividend yield. The dividend clientele effect is a possible explanation for management's reluctance to change dividend policy: such changes might lead to clientele shifts and cause investors to incur undesirable transaction costs. The significant positive coefficients of tax clientele (*TAX_CLTL*) across Australia and U.S. DCs (t=2.26 and t=3.11) and across Australia and Malaysian MCs (t=3.06 and t=2.88) supports Elton and Gruber (1970).

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[53] In general, the greater the amount of investment during the period, the smaller the dividend or the greater the new equity issued.

It is often argued that a firm with more systematic risk (*BETA*)[54] tends to adopt a policy of setting a relatively low payout ratio. Consistent with this argument the test results show that firm risk proxied by firm beta (*BETA*) show that the DCs in Australia, U.S., Japan, U.K. and Malaysia (t=-4.35, t=-2.61, t=-6.11, t=-2.62 and t=-5.15) have negative and significant relationship, and similarly the beta of MCs in U.S., Japan, U.K. and Malaysia also have negative and significant (t=-4.10, t=-3.29, t=-5.18 and t=-4.17) impact on cash dividend payments. This result is supported by Rozeff (1982), Lloyd (1985), Bajaj and Vijh (1990), Schooley and Barney (1994) and Dyl and Weigand (1998).

There are two alternative hypotheses that predict no abnormal dividend payments after debt issue. First, the debt covenant (*LTD*) hypothesis predicts that firms will decrease or not increase after debt issues. Kalay (1982) suggests that debt contracts restrict dividend payments directly and indirectly. Consistent with the debt covenant hypothesis, DeAngelo and DeAngelo (1990), Jensen, Solberg and Zorn (1992), and Long, Malitz and Sefcik (1994) find an inverse relationship between dividends and debts. However, Denis (1990), Gupta and Rosenthal (1991), Smith and Watts (1992), Mougou and Mukherjee (1994), and Adedeji (1998) find a positive relationship between the leverages of a firm and dividends. Our result show that the reputation hypothesis significantly holds for U.S. DCs (t=2.08) and it suggests that on the basis of asymmetric information between insiders of the firm and outside debt holders, U.S. DCs are willing to maintain their reputation. This is consistent with Long, Malitz and Sefcik (1994). John and Nechman (1985) develop a model which shows the importance of reputation in controlling costs. The debt covenant hypothesis significantly holds for Malaysian DCs (t=-5.80) and MCs across Australia (t=-2.52), U.S. (t=-1.70) and Malaysia (t=-4.22).

Similar to systematic risk, Beaver et al. (1970), Michel and Shaked (1986), Bar-Yosef and Huffman (1988), Glen et al. (1995), and others argue that the uncertainty of a firm's earnings may lead it to pay lower dividends because the existence of large fluctuations in earnings materially increases the risk of default. Further, if firms follow a policy of dividends

[54] A firm's security beta represents its level of systematic risk.

stabilization, firms with greater volatility in earnings will set a low payout ratio, which can be maintained even if firms follow a policy of dividend stabilisation - firms with greater volatility in earnings will set a low payout ratio, which can be maintained even in the face of a relatively serious or prolonged decline in earnings. The findings in the regression result show that cash flow variability coefficient (*CFV*) has a mixed sign. As the result shows *CFV* for U.S. DCs is negative and significant (t=-2.36), it is positive and significant for DCs in Australia (t=2.40) and Japan (t=2.01) and Malaysia (t=1.80).

Chang and Rhee (1990), Smith and Watts (1992), Graver and Graver (1993), Lloyd, Jahera and Page (1985), and Holder, Langrehr and Hexter (1998) discover a positive relationship between dividend and firm size, that is, the larger a firm, the higher the dividends payments. The firm size (*SIZE*) variable has positive and significant relationship between cash dividends in both DCs in Australia and U.S. (t=4.39 and t=4.25) and MCs in U.S., Japan, U.K. and Malaysia (t=2.26, t=3.48 and t=2.85 and t=3.05 respectively) - indicates that larger DCs and MCs tend to be more mature and thus have easier access to the capital markets, which reduces their dependence on internally-generated funding and allows for higher dividend payout ratios. There are two alternative hypotheses that predict no abnormal dividend payments after debt issue. First, the debt covenant hypothesis predicts that firms will decrease or not increase dividends after debt issues. Kalay (1982) shows that debt contracts restrict dividend payments directly and indirectly. He shows that the stockholders of leveraged firms choose to pay dividends under the debt contracts. Consistent with the debt covenant hypothesis, DeAngelo and DeAngelo (1990), Jensen, Solberg and Zorn (1992), and Long, Malitz and Sefcik (1994) find an inverse relationship between dividends and debts. However, Denis (1990), Gupta and Rosenthal (1991), Smith and Watts (1992) and Mougoue and Mukherjee (1994) find a positive relationship between the leverages of a firm and its dividends. On the other hand, the reputation hypothesis also predicts no abnormal dividend payments after debt issues. On the basis of asymmetric information between the insiders of the firm and outside debt-holders, John and Nachman (1985) suggest that firms are willing to maintain their reputation. Long, Malitz and Sefcik (1994) test both the debt covenant and reputation hypothesis and conclude that reputation is the most plausible explanation why firms do not transfer wealth from bondholders to stockholders through dividend policy. Our result of debt constraint variable (*LTD*) finds support for debt covenant hypothesis for DCs in U.S. (t=2.08) while the support for reputation hypothesis is observed for Malaysian DCs (t=-5.80) and MCs across Australia (t=-2.52), U.S. (t=-1.70) and Malaysia (t=-4.22).

Table 6.4
Cash dividend and total dividend determinants for DCs and MCs across 5 sampled countries

This table reports the results of OLS regression (Model I) to obtain the parameters and t-statistics accordingly for the sample of 2248 (994 DCs and 1254 MCs separately) listed companies in the Australian Stock Exchange over 10 years to 2004. The adjusted R squared indicates the model's goodness of fit.

$$DIVC_{i,t}^{*} = \beta_0 + \beta_1 DIVER_{i,t} + \beta_2 FX_{i,t} + \beta_3 PR_{i,t} + \beta_4 AGC_{i,t} + \beta_5 FCF_{i,t} + \beta_6 GROW\_MB_{i,t} + \beta_7 GROW\_PT_{i,t} + \beta_8 SR_{i,t} + \beta_9 ATR_{i,t} + \beta_{10} TAX\_CLTL_{i,t}$$
$$+ \beta_{11} CFV_{i,t} + \beta_{12} PROF_{i,t} + \beta_{13} BETA_{i,t} + \beta_{14} SIZE_{i,t} + \beta_{15} CVA_{i,t} + \beta_{16} AGE_{i,t} + \beta_{17} LTD_{i,t} + \varepsilon_{i,t}$$

* indicates that this model uses two different measurement of dividend payout ratios which is explained below.

Two dependent variables have been employed and they are: $DIVC_{i,t}$ (**Panel A**: cash payout ratios) is calculated using cash dividend paid to net earnings and $DIVR_{i,t}$ (**Panel B**: cash and share repurchase dividend payout ratios) is calculated as cash plus change in treasury stock scaled by net earnings. $DIVER_{i,t}$ (diversification) is the total number of subsidiaries that any firm has within their domicile country and overseas. $FX_{i,t}$ (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. $PR_{i,t}$ (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. $AGC_{i,t}$ (agency cost) is the natural logarithm of total shareholders. $FCF_{i,t}$ (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortization plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. Two growth measures have been used in this study namely $GROW\_MB_{i,t}$ (market value of equity to book value of asset) which is measured as market value of asset to book value of asset. And secondly, $GROW\_PT_{i,t}$ (past growth) which is measured as the change in total assets over total assets. $SR_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. $ATR_{i,t}$ (average tax ratios) is calculated as total tax paid per annum scaled by net profit. $TAX\_CLTL_{i,t}$ (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. $CFV_{i,t}$ (cash flow variation) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. $SIZE_{i,t}$ is the natural logarithm of total asset. $CVA_{i,t}$ (collateral value of assets) is the ratio of fixed assets to total assets. $AGE_{i,t}$ is the natural logarithm of the age of the firm in years from date of incorporation. $LEVERAGE_{i,t}$ is the ratio of long-term debt to long-term debt plus market value of equity. a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

	DCs ($DIVC_{i,t}$)										MCs ($DIVC_{i,t}$)									
Panel A	AU		US		JP		UK		ML		AU		US		JP		UK		ML	
	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	-0.13	-0.40	0.13	0.72	0.22	1.11	0.31	0.95	0.03	0.29	-0.69	-1.37	0.14	0.86	0.14	0.73	-0.24	-1.18	-0.36	**-1.98** [a]
DIVER$_{i,t}$	-0.08	**-4.43** [a]	-0.01	**-2.11** [a]	0.00	0.28	-0.01	-0.45	-0.02	-1.60	-0.02	-1.13	0.01	1.18	0.01	1.60	0.00	-0.34	0.00	0.44
FX$_{i,t}$	0.04	0.52	0.02	0.60	-0.07	-0.72	-0.06	-0.99	-0.03	-1.06	-0.11	-1.35	0.00	0.19	-0.04	-0.99	0.04	1.18	-0.02	-0.48
PR$_{i,t}$	0.00	0.76	0.00	0.67	0.00	-1.13	0.00	-0.40	0.00	0.55	0.01	1.63	0.00	-0.87	0.00	**-1.66** [c]	0.00	1.59	0.01	**2.35** [a]
AGC$_{i,t}$	0.02	1.02	-0.05	**-2.95** [a]	0.00	-0.47	-0.01	-0.71	0.00	0.19	0.06	1.41	-0.01	-0.65	0.01	0.79	0.03	**2.54** [a]	-0.02	**-1.98** [a]
FCF$_{i,t}$	-0.01	-0.79	0.00	-0.95	-0.28	**-2.54** [a]	0.00	-0.02	-0.01	-1.59	-0.03	-0.69	0.00	**7.95** [a]	0.00	-0.31	-0.01	-0.90	-0.01	-0.29
GROW_MB$_{i,t}$	0.00	0.46	0.00	0.10	0.00	**1.90** [b]	0.00	**-6.49** [a]	0.00	0.53	0.00	0.61	0.00	1.38	0.00	0.57	0.00	-0.10	-0.02	**-5.23** [a]
GROW_PT$_{i,t}$	-0.01	-1.40	0.02	1.55	0.00	**2.67** [a]	0.06	**2.21** [a]	0.02	1.23	-0.05	-0.60	0.00	**1.86** [b]	0.00	1.52	0.00	-0.05	0.03	1.00
SR$_{i,t}$	0.03	**3.03** [a]	0.09	**6.09** [a]	0.07	**7.34** [a]	0.03	**4.36** [a]	0.03	**9.94** [a]	0.01	0.69	0.10	**12.06** [a]	0.08	**7.19** [a]	0.03	**4.73** [a]	0.02	**3.75** [a]
ATR$_{i,t}$	0.00	-0.35	0.00	0.56	0.03	**2.89** [a]	0.03	**2.65** [a]	0.00	**6.25** [a]	0.05	0.58	0.00	**11.99** [a]	0.05	**4.45** [a]	0.01	**2.87** [a]	0.04	**4.84** [a]
TAX_CLTL$_{i,t}$	0.60	**2.26** [a]	0.00	**3.11** [a]	0.00	-0.46	-0.23	-1.34	0.04	1.25	1.15	**3.06** [a]	-0.04	**-5.17** [a]	0.00	0.33	-0.25	**-1.66** [c]	1.18	**2.88** [a]
CVF$_{i,t}$	-4.37	**-4.35** [a]	-3.29	**-2.61** [b]	-5.67	**-6.11** [a]	-2.73	**-2.62** [a]	-1.89	**-5.15** [a]	-1.34	-0.54	-2.85	**-4.10** [a]	-2.79	**-3.29** [a]	-4.17	**-5.18** [a]	-3.99	**-4.17** [a]
PROF$_{i,t}$	0.04	**3.39** [a]	-0.02	-0.87	0.60	**2.79** [a]	0.25	**3.21** [a]	0.12	**3.02** [a]	0.24	**1.90** [b]	-0.06	-0.86	0.30	**2.06** [a]	0.11	**2.30** [a]	0.23	**2.24** [a]
BETA$_{i,t}$	0.41	**2.40** [a]	-0.12	**-2.36** [b]	0.07	0.90	0.05	0.29	0.13	1.63	-0.01	-0.06	-0.04	-0.98	0.13	**2.01** [a]	0.14	1.14	0.34	**1.80** [a]

Table 6.4 Continued ...

SIZE $_{i,t}$	0.07	**4.39**[a]	0.02	**4.25**[a]	0.00	0.90	0.01	1.14	0.00	1.08	0.04	1.61	0.01	**2.26**[a]	0.01	**3.48**[a]	0.03	**2.85**[a]	0.03	**3.05**[a]
CVA $_{i,t}$	0.00	0.06	0.06	1.56	0.03	0.62	-0.02	-0.23	0.03	1.32	-0.26	**-2.25**[a]	0.04	1.27	0.10	**2.02**[b]	0.04	0.81	-0.01	-0.15
AGE $_{i,t}$	-0.03	-1.57	0.00	0.08	0.06	**3.76**[a]	0.03	**2.38**[a]	0.02	**3.66**[a]	0.02	0.48	0.03	**4.22**[a]	0.04	**1.81**[c]	0.02	1.36	0.01	0.51
LTD $_{i,t}$	-0.14	-1.63	0.06	**2.08**[a]	-0.04	-1.28	-0.10	-1.34	-0.09	**-5.80**[a]	-0.33	**-2.52**[a]	-0.04	**-1.70**[a]	-0.03	-0.88	0.00	0.04	-0.15	**-4.22**[a]
Adj R-sqr	0.45		0.61		0.26		0.33		0.20		0.42		0.40		0.27		0.33		0.40	
No. of Obs	994		1371		1093		719		1861		1254		1417		814		1469		964	

Panel B	DCs ($DIVR_{i,t}$)										MCs ($DIVR_{i,t}$)									
	AU		US		JP		UK		ML		AU		US		JP		UK		ML	
	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	-0.24	-0.71	0.03	**2.22**[a]	0.01	0.05	0.35	1.06	0.00	0.02	-0.03	-1.67	0.07	**5.87**[a]	-0.54	**-2.13**[a]	-0.09	-0.41	0.01	0.66
DIVER $_{i,t}$	-0.06	**-2.76**[a]	0.14	**2.29**[a]	0.00	-0.27	-0.01	-0.44	-0.01	-0.55	-0.10	-1.00	0.10	**1.99**[a]	0.00	-0.32	-0.01	-0.61	0.00	-0.05
FX $_{i,t}$	0.10	1.30	0.01	**3.78**[a]	0.16	1.07	-0.06	-1.05	-0.01	-0.14	0.01	1.32	0.00	0.23	0.06	1.18	0.04	1.24	0.01	**2.65**[a]
PR $_{i,t}$	0.00	0.96	-0.10	**-3.44**[a]	0.00	0.10	0.00	-0.51	0.00	0.63	0.06	1.48	-0.02	-0.45	0.01	**1.85**[a]	0.00	0.83	-0.02	-1.64
AGC $_{i,t}$	0.02	0.97	0.00	-0.84	0.01	0.49	-0.01	-0.57	0.00	0.28	-0.01	-0.19	0.00	**10.40**[a]	0.02	1.51	0.03	**2.81**[a]	0.00	0.03
FCF $_{i,t}$	0.00	-0.33	0.00	**-3.61**[a]	-0.21	-1.55	0.00	-0.14	-0.01	-1.55	0.00	0.51	0.00	0.43	0.00	-0.87	-0.01	-0.82	-0.03	**-5.57**[a]
GROW_MB $_{i,t}$	0.00	0.54	-0.03	-0.46	0.00	**2.52**[a]	0.00	**-6.54**[a]	0.00	0.54	-0.05	-0.54	0.00	1.17	0.00	**2.01**[a]	0.00	-0.20	0.06	1.20
GROW_PT $_{i,t}$	-0.01	-1.16	0.07	**4.89**[a]	0.00	**3.02**[a]	0.07	**2.21**[a]	0.02	1.06	0.01	0.88	0.12	**8.46**[a]	0.00	1.61	0.01	0.22	0.02	**3.51**[a]
SR $_{i,t}$	0.03	**3.03**[a]	0.01	0.76	0.08	**6.18**[a]	0.03	**4.33**[a]	0.03	**9.46**[a]	0.07	0.71	0.00	**9.55**[a]	0.10	**6.80**[a]	0.03	**4.67**[a]	0.04	**4.68**[a]
ATR $_{i,t}$	0.00	-0.43	0.00	1.64	0.04	**2.58**[a]	0.04	**2.24**[a]	0.00	**6.12**[a]	1.51	**3.63**[a]	-0.09	**-10.33**[a]	0.07	**4.04**[a]	0.01	**2.92**[a]	1.10	**2.52**[a]
TAX_CLTL $_{i,t}$	0.57	**2.14**[a]	-5.02	**-2.50**[a]	0.00	0.09	-0.23	-1.33	0.02	0.48	0.46	0.18	-7.12	**-5.06**[a]	0.00	0.32	-0.23	-1.44	-4.11	**-4.08**[a]
CVF $_{i,t}$	-4.21	**-4.22**[a]	0.15	1.20	-8.89	**-7.03**[a]	-2.87	**-2.72**[a]	-2.30	**-5.57**[a]	0.22	1.70	0.65	**3.64**[a]	-5.96	**-5.27**[a]	-4.37	**-5.20**[a]	0.22	**1.92**[b]
PROF $_{i,t}$	0.03	**3.29**[a]	-0.16	-1.55	1.27	**4.09**[a]	0.25	**3.14**[a]	0.11	**2.87**[a]	0.46	1.69	0.01	0.15	1.09	**4.79**[a]	0.11	**2.08**[a]	0.28	1.41
BETA $_{i,t}$	0.35	**1.86**[b]	0.03	**2.22**[a]	-0.05	-0.47	-0.01	-0.03	0.18	**2.20**[a]	0.07	**2.35**[a]	0.01	0.58	-0.15	**-1.85**[a]	0.14	1.15	0.03	**3.23**[a]
SIZE $_{i,t}$	0.07	**4.52**[a]	-0.03	-0.42	0.01	1.28	0.02	1.25	0.01	**1.72**[b]	-0.21	**-1.66**[c]	0.09	1.33	0.02	**3.57**[a]	0.03	**3.00**[a]	-0.01	-0.22
CVA $_{i,t}$	0.01	0.11	0.04	**2.93**[a]	-0.01	-0.17	-0.03	-0.45	0.02	1.06	0.02	0.48	0.12	**8.03**[a]	0.07	1.09	0.04	0.67	0.03	1.04
AGE $_{i,t}$	-0.03	-1.35	0.08	1.53	0.09	**3.69**[a]	0.03	**2.40**[a]	0.03	**4.27**[a]	-0.35	**-2.50**[a]	-0.03	-0.68	0.06	**2.23**[a]	0.01	1.10	-0.17	**-4.73**[a]
LTD $_{i,t}$	-0.12	-1.38	0.00	0.00	-0.05	-1.03	-0.10	-1.42	-0.10	**-5.92**[a]	0.00	0.00	0.00	0.00	-0.09	**-2.14**[a]	0.01	0.25	0.00	0.00
Adj R-sqr	0.44		0.24		0.21		0.33		0.19		0.35		0.27		0.24		0.31		0.36	
No. of Obs	994		1371		1093		719		1861		1254		1417		814		1469		964	

6.7.2 Multinationality Effect on Dividend Pay out Ratios

There is no prior literature on the share repurchase behaviour in multinational firms. This is the first empirical testing and therefore the results interpretation makes no reference to prior studies. However, as the theory suggests a corporation that plans to distribute cash to its shareholders may do so by way of a dividend or a share repurchase. As discussed earlier, Miller and Modigliani (1961) demonstrated that in a perfect market setting shareholders would be indifferent between share repurchases and the payments of cash dividends. However, the prediction that corporations will distribute cash to shareholders by way of repurchases only, in order to avoid the adverse tax consequences of dividends, is clearly counterfactual, and the challenge remains to explain the survival of dividends in the age of the income tax. Prior to 2003, while dividends gave rise to an immediate income tax liability for taxable investors, the situation with repurchases is more complex. Selling shares used to be potentially liable to capital gains tax on the excess of the sale price over their costs basis. However, even if capital gains are taxed at the same rates as ordinary income as under the current tax law, an individual's tax liability under a repurchase is likely to be less than under an equivalent cash dividend since only a portion of the repurchase payment will be liable for tax. The tax bias on repurchases is even stronger when capital gains are taxed at preferential rates (Brennan & Thakor, 1990).

The aim of this regression analysis presented in Table 6.5 is to investigate the relationship of the multinationality of a firm and dividend payout behaviour after controlling for firm-specific and international factors. The significance level of these factors remains relatively similar to the results discussed earlier that were shown in Table 6.5 and therefore no discussion will be provided accept from multinationality ($MULT_{i,t}$) variable.

In this model, the entire samples of DCs and MCs have been pooled while the controlling variables are kept consistent. To capture the effect of multinationality, a dummy variable is introduced where it takes a value of unity for MCs, otherwise zero. The result suggests that the coefficient of the multinationality is mixed sign across countries for both cash dividend payments, and surprisingly no significant relationship is observed.

The only corporations out of five sample countries, the MCs in Australia have tendency of paying higher cash dividends and dividends (cash and share repurchase); however, statistically it is not significant (t=0.59 and t=0.82). In contrast, although the cash dividend payment of U.S. MCs shows negative relationship, it does show positive relationship with dividend payment, indicating MCs in U.S. pay higher dividends than their DCs counterparts although statistically it is not significant. Interestingly, the result also shows that when dividend is comprised of cash and share repurchase types, U.S. MCs pay higher dividends relative to DCs; however, this relationship is not statistically significant (t=0.38). This result is not consistent with Hines Jr. (1996) on a statistical level.

The adjusted R^2 for the regression across countries indicates that the explanatory power of the model is reasonably well explained. This ranges from 21% (Malaysia) to 47% (U.S.) for cash dividends, and as for dividends it ranges from 20% (Malaysia) to 41% (Australia).

Table 6.5

Multinationality effect in determining cash dividend and total dividend payments across 5 sampled countries

This table reports the results of OLS regression (Model II to obtain the parameters and t-statistics accordingly for the sample of 2248 (994 DCs and 1254 MCs separately) listed companies in the Australian Stock Exchange over 10 years to 2004. The adjusted R squared indicates the model's goodness of fit.

$$DIVC_{i,t}^{*} = \beta_0 + \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 PR_{i,t} + \beta_5 AGC_{i,t} + \beta_6 FCF_{i,t} + \beta_7 GROW\_MB_{i,t} + \beta_8 GROW\_PT_{i,t} + \beta_9 SR_{i,t} + \beta_{10} ATR_{i,t}$$
$$+ \beta_{11} TAX\_CLTL_{i,t} + \beta_{12} CFV_{i,t} + \beta_{13} PROF_{i,t} + \beta_{14} BETA_{i,t} + \beta_{15} SIZE_{i,t} + \beta_{16} CVA_{i,t} + \beta_{17} AGE_{i,t} + \beta_{18} LTD_{i,t} + \varepsilon_{i,t}$$

* indicates that this model uses two different measurement of dividend payout ratios which is explained below.

Two dependent variables have been employed and they are: $DIVC_{i,t}$ (cash payout ratios) is calculated using cash dividend paid to net earnings and $DIVR_{i,t}$ (cash and share repurchase dividend payout ratios) is calculated as cash plus change in treasury stock scaled by net earnings. Multinationality ($MULT_{i,t}$) effect is measured where it takes a value of 1 when a corporation is a multinational otherwise it is 0. $DIVER_{i,t}$ (diversification) is the total number of subsidiaries that any firm has within their domicile country and overseas. $FX_{i,t}$ (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. $PR_{i,t}$ (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. $AGC_{i,t}$ (agency cost) is the natural logarithm of total shareholders. $FCF_{i,t}$ (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortization plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. Two growth measures have been used in this study namely $GROW\_MB_{i,t}$ (market value of equity to book value of asset) which is measured as market value of asset to book value of asset. And secondly, $GROW\_PT_{i,t}$ (past growth) which is measured as the change in total assets over total assets. $SR_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. $ATR_{i,t}$ (average tax ratios) is calculated as total tax paid per annum scaled by net profit. $TAX\_CLTL_{i,t}$ (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. $CFV_{i,t}$ (cash flow variation) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. $SIZE_{i,t}$ is the natural logarithm of total asset. $CVA_{i,t}$ (collateral value of assets) is the ratio of fixed assets to total assets. $AGE_{i,t}$ is the natural logarithm of the age of the firm in years from date of incorporation. $LEVERAGE_{i,t}$ is the ratio of long-term debt to long-term debt plus market value of equity. Model II adds a dummy variable in addition to common eighteen variables to capture multinationality. For example, other attributes: inflation, interest rates, restrictions on the quantity of amount DCs and MCs can borrow overseas, debt market efficiency and borrowing costs to finance dividend payments which *FX*, *PR* and *DIVER* do not capture.

	$DIVC_{i,t}$										$DIVR_{i,t}$									
	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
	AU		US		JP		GB		ML		AU		US		JP		GB		ML	
C	-0.14	-0.53	0.17	1.40	0.17	1.25	0.02	0.12	-0.04	-0.50	-0.27	-0.97	-0.30	-1.16	-0.24	-1.27	0.14	0.81	-0.07	-0.79
$MULT_{i,t}$	0.02	0.59	0.00	-0.05	-0.01	-0.96	-0.01	-0.26	0.00	-0.10	0.04	0.82	0.01	0.38	-0.03	-1.21	0.00	-0.22	-0.02	-1.33
$DIVER_{i,t}$	-0.04	**-3.95** [a]	0.00	-0.18	0.00	1.17	-0.01	-0.79	0.00	-0.65	-0.05	**-3.59** [a]	0.06	**6.39** [a]	0.00	-0.69	-0.01	-1.06	0.00	0.15
$FX_{i,t}$	-0.03	-0.53	0.02	0.98	-0.05	-1.55	0.01	0.41	-0.03	-1.28	0.01	0.09	0.13	**3.53** [a]	0.07	1.52	0.01	0.47	-0.01	-0.27
$PR_{i,t}$	0.00	1.23	0.00	-0.42	0.00	**-1.82** [b]	0.00	0.70	0.00	1.24	0.00	1.01	0.01	**2.41** [a]	0.00	1.34	0.00	-0.01	0.00	1.37
$AGC_{i,t}$	0.03	1.58	-0.03	**-3.08** [a]	0.00	0.55	0.01	1.37	0.00	-0.98	0.03	**1.77** [b]	-0.08	**-3.51** [a]	0.01	1.57	0.01	1.67	0.00	-0.55
$FCF_{i,t}$	-0.01	-0.97	0.00	**4.81** [a]	0.00	-0.56	-0.01	-0.81	-0.01	-1.57	0.00	-0.44	0.00	**4.73** [a]	0.00	-1.27	-0.01	-0.74	-0.01	-1.53
$GROW\_MB_{i,t}$	0.00	0.91	0.00	-0.98	0.00	1.37	0.00	**-4.81** [a]	0.00	0.49	0.00	0.92	0.00	**-4.45** [a]	0.00	**3.07** [a]	0.00	**-4.72** [a]	0.00	0.38
$GROW\_PT_{i,t}$	-0.01	-0.69	0.00	0.57	0.00	**3.02** [a]	0.01	0.63	0.02	1.19	-0.01	-1.03	0.00	1.27	0.00	**3.07** [a]	0.02	0.80	0.02	1.06
$SR_{i,t}$	0.03	**3.54** [a]	0.09	**10.98** [a]	0.08	**10.60** [a]	0.03	**6.25** [a]	0.03	**10.51** [a]	0.03	**3.62** [a]	0.09	**8.74** [a]	0.09	**9.22** [a]	0.03	**6.20** [a]	0.03	**10.02** [a]
$ATR_{i,t}$	0.00	0.20	0.00	**11.75** [a]	0.04	**4.05** [a]	0.01	**2.75** [a]	0.00	**4.35** [a]	0.00	0.34	0.00	**9.29** [a]	0.05	**3.70** [a]	0.01	**2.76** [a]	0.00	**4.29** [a]
$TAX\_CLTL_{i,t}$	0.85	**3.83** [a]	0.00	**4.54** [a]	0.00	-0.87	-0.31	**-2.53** [a]	0.05	**2.16** [a]	0.95	**4.11** [a]	0.00	**2.21** [a]	0.00	-0.05	-0.29	**-2.31** [a]	0.03	0.99
$CVF_{i,t}$	-4.58	**-5.13** [a]	-3.02	**-4.26** [a]	-4.29	**-6.91** [a]	-3.75	**-5.74** [a]	-1.97	**-5.73** [a]	-3.89	**-4.39** [a]	-6.53	**-5.07** [a]	-7.54	**-8.90** [a]	-3.98	**-5.92** [a]	-2.38	**-6.17** [a]
$PROF_{i,t}$	0.04	**4.48** [a]	-0.01	-0.46	0.32	**2.74** [a]	0.14	**3.02** [a]	0.11	**3.02** [a]	0.03	**3.84** [a]	0.16	1.13	1.17	**6.44** [a]	0.14	**2.85** [a]	0.11	**2.86** [a]

Table 6.5 Continued…

$BETA_{i,t}$	-0.01	-0.07	-0.05	-1.49	0.11	**2.15** [a]	0.11	1.15	0.14	**1.96** [a]	0.24	**1.65** [c]	-0.03	-0.47	-0.11	**-1.66** [c]	0.10	0.98	0.18	**2.36** [a]
$SIZE_{i,t}$	0.05	**4.40** [a]	0.01	**3.98** [a]	0.01	**3.97** [a]	0.03	**3.43** [a]	0.01	**2.46** [a]	0.07	**4.96** [a]	0.01	0.74	0.01	**3.44** [a]	0.03	**3.63** [a]	0.01	**3.01** [a]
$CVA_{i,t}$	-0.03	-0.52	0.04	**1.76** [a]	0.07	**2.16** [a]	0.03	0.72	0.03	1.53	-0.01	-0.15	0.02	0.32	0.03	0.80	0.02	0.46	0.03	1.25
$AGE_{i,t}$	-0.02	-1.54	0.02	**4.07** [a]	0.05	**3.62** [a]	0.02	**2.58** [a]	0.02	**3.55** [a]	-0.01	-0.87	0.10	**9.27** [a]	0.08	**4.28** [a]	0.02	**2.25** [a]	0.03	**4.31** [a]
$LTD_{i,t}$	-0.17	**-2.59** [a]	0.00	0.03	-0.05	**-2.34** [a]	-0.02	-0.47	-0.10	**-7.08** [a]	-0.19	**-2.66** [a]	-0.01	-0.30	-0.07	**-2.34** [a]	-0.01	-0.33	-0.11	**-7.37** [a]
Adj R-sqr	0.39		0.47		0.25		0.31		0.21		0.41		0.25		0.22		0.29		0.20	
No. of Obs	2248		2788		1907		2188		2825		2248		2788		1907		2188		2825	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

6.7.3 Multinationality and Slope Difference of Cash Dividend and Dividends Payout

Hines Jr. (1996) attempted to investigate the effect of foreign profitability and dividend policy of DCs and MCs, and found that MCs pay three times as much dividends than the DCs because foreign operation assist them to make high profits therefore, they pass them to shareholders. We further extend the other explanatory factors to test the slope difference such that some economic explanation can be revealed about MCs' dividend payout policy determinants.

As noted earlier, the major determinants of a firm's payout ratio include firm-specific and international factors. Each of these factors, therefore, will be tested to investigate whether there is a significant difference between DCs and MCs firm-specific factors that may contribute to the difference in their dividend payment in addition to the MCs international factors (e.g. diversification, foreign exchange risk and political risk). Table 6.6 provides an insightful result of the difference of DCs' and MCs' dividend payment determinants. The following table attempts to differentiate between DCs' and MCs' dividends payments behaviour that is associated with the firm and environmental factors. The adjusted R^2 shows that the model provides a reasonable explanation, as the values range between 23% (Malaysia) to 44% (Australia).

The common determinants of coefficients significance level and sign remain relatively unchanged across countries. Since the aim of this model is to identify the significant slope differences, the original coefficients and their significance will not be discussed. This is to avoid repetition since similar results were discussed in Model I.

In Table 6.6, it appears that diversification (*M_DIVER*) is an important issue to consider in dividend payments decision for both DCs and MCs in Australia as this variable tested as statistically significant (t=2.28) in explaining the difference of Australian DCs' and MCs' cash dividend payment. This suggest that Australian MCs benefit from diversifying locally and internationally, which assists to increase the cash dividend payments relative to counterpart DCs. Similar result also holds for U.S. MCs (t=2.39), indicating diversification is a useful tool to maximize the benefit of different geographical locational advantages to increase dividends payments.

The slope coefficient of political risk (*M_PR*) is found to be significant and positive for U.S. (t=-2.46) and (t=2.07) for Malaysian corporations. This result is intuitive since MCs that originated in the U.S. and have subsidiaries outside of the U.S. are not the same as far as the impact of political risk is concerned. This is because the U.S. generally has a more stable political environment than other countries within our sample. Therefore, the negative and significant result is justified. On the contrary, the MCs that originated in Malaysia and expanded geographically can internalise the benefit of more stable political environments outside the domicile country and the result of negative and significant (t=1.87) relationship of slope difference of political risk factor (*M_PR*) indicates such a situation.

The slope difference of agency costs (*M_AGC*) of dividend payout produced mixed results for MCs in U.K. and Malaysia. For example, there is a significant and positive relationship with U.K. MCs' cash dividend payment (*M_AGC*) while it is a significant and negative relationship with Malaysia (t=-1.84). It indicates that Malaysian MCs are relatively more prone to agency costs which impact on the cash dividend payments. In contrast, U.K. MCs are better at managing their dividend-related agency costs and therefore it has a significant positive relationship (t=2.19) in explaining the difference of cash dividend payments between DCs and MCs in U.K..

The magnitude of free cash flow slope difference (*M_FCF*) for Japan indicates that it is positive and significant (t=2.53), indicating MCs in Japan have significantly higher *FCF* and it enables them to maintain cash dividend. The agency cost-related growth variable (*M_GROW_MB*) suggests that Malaysian MCs are relatively in more of a growth stage than the Malaysian DCs which requires more cash availability and therefore has a significant negative relationship (t=-5.37).

The significant interaction variable of average tax rate (*M_ATR*) implies that average tax rate is negative and significant (t=-1.91) to explain the difference of cash dividend payments for U.K. MCs and DCs and positive and significant in explaining the difference of Malaysian DCs and MCs (t=4.51). Further, the slope difference of tax clientele (*M_TAX_CLTL*) is only significant (t=2.85) in explaining the difference of Malaysian DCs' and MCs' cash dividends.

The interaction variable for business risk is positive and significant for Japanese MCs (t=2.29) and negative and significant for Malaysian MCs (t=-2.09).

While the interactive size variable (*M_SIZE*) is positive and significant in explaining the difference of Malaysian MCs' cash dividend payout, (*M_CVA*) and (*M_AGE*) only appears to significantly explain the difference of Australian and U.S. MCs cash dividend payments with their DCs counterparts.

Finally, the significant difference of (*M_LTD*) variable suggests that US is the only country out of five sample countries where the slope difference of dividend payouts between DCs and MCs is explained by long-term debt ratio (t=-2.69).

Adjusted R-sqr explains the model fairly well and the result shows that the proposed model explains better for U.S. as the model explains about 44%. This model also explains fairly well for the other four countries and it ranges between 23% to 49%.

Table 6.6
Interaction effect in explaining the difference of cash dividend between DCs and MCs across 5 sampled countries

This table reports the results of OLS regression (Model III) to obtain the parameters and t-statistics accordingly for the sample of 2248 (994 DCs and 1254 MCs separately) listed companies in the Australian Stock Exchange over 10 years to 2004. The adjusted R squared indicates the model's goodness of fit.

$$\begin{aligned} DIVC_{i,t}^{*} = {} & \beta_0 + \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 PR_{i,t} + \beta_5 AGC_{i,t} + \beta_6 FCF_{i,t} + \beta_7 GROW\_MB_{i,t} \\ & + \beta_8 GROW\_PT_{i,t} + \beta_9 SR_{i,t} + \beta_{10} ATR_{i,t} + \beta_{11} TAX\_CLTL_{i,t} + \beta_{12} CFV_{i,t} + \beta_{13} PROF_{i,t} \\ & + \beta_{14} BETA_{i,t} + \beta_{15} SIZE_{i,t} + \beta_{16} CVA_{i,t} + \beta_{17} AGE_{i,t} + \beta_{18} LTD_{i,t} + \beta_{19} M\_DIVER_{i,t} \\ & + \beta_{20} M\_FX_{i,t} + \beta_{21} M\_PR_{i,t} + \beta_{22} M\_AGC_{i,t} + \beta_{23} M\_FCF_{i,t} + \beta_{24} M\_GROW\_MB_{i,t} \\ & + \beta_{25} M\_GROW\_PT_{i,t} + \beta_{26} M\_SR_{i,t} + \beta_{27} M\_ATR_{i,t} + \beta_{28} M\_TAX\_CLTL_{i,t} \\ & + \beta_{29} M\_CFV_{i,t} + \beta_{30} M\_PROF_{i,t} + \beta_{31} M\_BETA_{i,t} + \beta_{32} M\_SIZE_{i,t} + \beta_{33} M\_CVA_{i,t} \\ & + \beta_{34} M\_AGE_{i,t} + \beta_{35} M\_LTD_{i,t} + \varepsilon_{i,t} \end{aligned}$$

* indicates that this model uses two different measurement of dividend payout ratios which is explained below.

Two dependent variables have been employed and they are: *$DIVC_{i,t}$* (cash payout ratios) is calculated using cash dividend paid to net earnings and *$DIVR_{i,t}$* (cash and share repurchase dividend payout ratios) is calculated as cash plus change in treasury stock scaled by net earnings. In order to capture the multinationality effect a dummy variable is introduced where it takes a 1 when a corporation is a multinational otherwise it is 0. *$DIVER_{i,t}$* (diversification) is the total number of subsidiaries that any firm has within their domicile country and overseas. *$FX_{i,t}$* (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. *$PR_{i,t}$* (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. *$AGC_{i,t}$* (agency cost) is the natural logarithm of total shareholders. *$FCF_{i,t}$* (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortization plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. Two growth measures have been used in this study namely *$GROW\_MB_{i,t}$* (market value of equity to book value of asset) which is measured as market value of asset to book value of asset. And secondly, *$GROW\_PT_{i,t}$* (past growth) which is measured as the change in total assets over total assets. $SR_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. *$ATR_{i,t}$* (average tax ratios) is calculated as total tax paid per annum scaled by net profit. *$TAX\_CLTL_{i,t}$* (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. *$CFV_{i,t}$* (cash flow variation) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. *$SIZE_{i,t}$* is the natural logarithm of total asset. *$CVA_{i,t}$* (collateral value of assets) is the ratio of fixed assets to total assets. *$AGE_{i,t}$* is the natural logarithm of the age of the firm in years from date of incorporation. *$LEVERAGE_{i,t}$* is the ratio of long-term debt to long-term debt plus market value of equity. Model III incorporates slope dummy variables in addition to common eighteen variables to capture multinationality impact on each of the explanatory variables. For example, Model III aims to discover any unexplained issues that Model II failed to capture which are either hard to measure or just not available to explain the MCs' operational behaviour and its impact on dividend payments. Besides, some of these other attributes are hard to measure since some are qualitative information. The interaction dummy variable is used to find the significant difference of the common eight variables. For example, *$M\_DIVER_{i,t}$* takes the actual value of MCs while it is 0 for the DCs.

	$DIVC_{i,t}$									
	AU		US		JP		UK		ML	
	Coeff	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.13	-0.40	0.13	0.72	0.22	1.11	0.31	0.96	0.03	0.29
$MULT_{i,t}$	-0.56	-0.95	0.02	0.07	-0.08	-0.28	-0.54	-1.44	-0.39	**-1.93**^{c}
$DIVER_{i,t}$	-0.08	**-4.37**^{a}	-0.01	**-2.12**^{b}	0.00	0.28	-0.01	-0.45	-0.02	-1.60
$FX_{i,t}$	0.04	0.52	0.02	0.60	-0.07	-0.72	-0.06	-1.00	-0.03	-1.05
$PR_{i,t}$	0.00	0.75	0.00	0.67	0.00	-1.13	0.00	-0.40	0.00	0.55
$AGC_{i,t}$	0.02	1.01	-0.05	**-2.96**^{a}	0.00	-0.47	-0.01	-0.71	0.00	0.19
$FCF_{i,t}$	-0.01	-0.78	0.00	-0.96	-0.28	**-2.54**^{a}	0.00	-0.02	-0.01	-1.58
$GROW\_MB_{i,t}$	0.00	0.45	0.00	0.10	0.00	**1.90**^{c}	0.00	**-6.56**^{a}	0.00	0.53
$GROW\_PT_{i,t}$	-0.01	-1.38	0.02	1.55	0.00	**2.67**^{a}	0.06	**2.24**^{b}	0.02	1.22
$SR_{i,t}$	0.03	**2.99**^{a}	0.09	**6.10**^{a}	0.07	**7.35**^{a}	0.03	**4.41**^{a}	0.03	**9.91**^{a}
$ATR_{i,t}$	0.00	-0.34	0.00	0.57	0.03	**2.89**^{a}	0.03	**2.68**^{a}	0.00	**6.23**^{a}
$TAX\_CLTL_{i,t}$	0.60	**2.23**^{b}	0.00	**3.11**^{a}	0.00	-0.46	-0.23	-1.35	0.04	1.24
$CVF_{i,t}$	-4.37	**-4.29**^{a}	-3.29	**-2.61**^{a}	-5.67	**-6.12**^{a}	-2.73	**-2.64**^{b}	-1.89	**-5.13**^{a}
$PROF_{i,t}$	0.04	**3.34**^{a}	-0.02	-0.87	0.60	**2.79**^{a}	0.25	**3.24**^{a}	0.12	**3.01**^{a}
$BETA_{i,t}$	0.41	**2.37**^{b}	-0.12	**-2.36**^{b}	0.07	0.90	0.05	0.30	0.13	1.63
$SIZE_{i,t}$	0.07	**4.33**^{a}	0.02	**4.26**^{a}	0.00	0.90	0.01	1.15	0.00	1.08
$CVA_{i,t}$	0.00	0.06	0.06	1.57	0.03	0.62	-0.02	-0.23	0.03	1.31
$AGE_{i,t}$	-0.03	-1.55	0.00	0.08	0.06	**3.76**^{a}	0.03	**2.40**^{b}	0.02	**3.65**^{a}
$LTD_{i,t}$	-0.14	-1.61	0.06	**2.09**^{b}	-0.04	-1.28	-0.10	-1.36	-0.09	**-5.78**^{a}
$M\_DIVER_{i,t}$	0.06	**2.28**^{b}	0.02	**2.39**^{b}	0.01	0.53	0.00	0.12	0.02	1.49
$M\_FX_{i,t}$	-0.15	-1.38	-0.01	-0.35	0.03	0.31	0.10	1.43	0.01	0.19

M_PR $_{i,t}$	0.01	0.86	0.00	-1.09	0.00	-0.36	0.00	1.19	0.01	**1.87**[c]
M_AGC $_{i,t}$	0.04	0.92	0.04	1.84	0.01	0.91	0.04	**2.19**[b]	-0.02	**-1.84**[c]
M_FCF $_{i,t}$	-0.03	-0.55	0.00	1.50	0.28	**2.53**[a]	-0.01	-0.79	0.00	-0.10
M_GROW_MB $_{i,t}$	0.00	0.06	0.00	1.37	0.00	-0.04	0.00	0.33	-0.02	**-5.37**[a]
M_GROW_PT $_{i,t}$	-0.04	-0.50	-0.02	-1.52	0.00	-1.38	-0.07	-1.62	0.02	0.44
M_SR $_{i,t}$	-0.01	-0.84	0.02	1.07	0.01	0.65	0.00	-0.50	-0.01	-1.53
M_ATR $_{i,t}$	0.05	0.63	0.00	-0.41	0.02	1.22	-0.03	**-1.91**[c]	0.03	**4.51**[a]
M_TAX_CLTL $_{i,t}$	0.55	1.22	-0.05	**-5.34**[a]	0.00	0.47	-0.02	-0.08	1.14	**2.85**[a]
M_CVF $_{i,t}$	3.02	1.15	0.45	0.31	2.88	**2.29**[a]	-1.45	-1.11	-2.11	**-2.09**[b]
M_PROF $_{i,t}$	0.20	1.66	-0.04	-0.56	-0.30	-1.15	-0.14	-1.53	0.12	1.07
M_BETA $_{i,t}$	-0.43	-1.61	0.08	1.27	0.05	0.52	0.09	0.46	0.21	1.06
M_SIZE $_{i,t}$	-0.02	-0.74	-0.01	-1.18	0.01	1.64	0.01	0.96	0.02	**2.28**[b]
M_CVA $_{i,t}$	-0.26	**-2.00**[a]	-0.01	-0.28	0.07	1.12	0.06	0.68	-0.04	-0.63
M_AGE $_{i,t}$	0.05	1.09	0.03	**2.59**[b]	-0.03	-1.10	-0.01	-0.80	-0.01	-0.39
M_LTD $_{i,t}$	-0.20	-1.26	-0.10	**-2.69**[b]	0.01	0.28	0.10	1.10	-0.06	-1.59
Adj R-sqr	0.44		0.49		0.27		0.33		0.23	
No. of Obs	2248		2788		1907		2188		2825	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

Table 6.7
Pooled sample with interaction slope dummy variables for multinational firms across 5 countries in explaining dividend

$$
\begin{aligned}
DIVR_{i,t}^{*} = {} & \beta_0 + \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 PR_{i,t} + \beta_5 AGC_{i,t} + \beta_6 FCF_{i,t} \\
& + \beta_7 GROW\_MB_{i,t} + \beta_8 GROW\_PT_{i,t} + \beta_9 SR_{i,t} + \beta_{10} ATR_{i,t} + \beta_{11} TAX\_CLTL_{i,t} \\
& + \beta_{12} CFV_{i,t} + \beta_{13} PROF_{i,t} + \beta_{14} BETA_{i,t} + \beta_{15} SIZE_{i,t} + \beta_{16} CVA_{i,t} + \beta_{17} AGE_{i,t} + \beta_{18} LTD_{i,t} \\
& + \beta_{19} M\_DIVER_{i,t} + \beta_{20} M\_FX_{i,t} + \beta_{21} M\_PR_{i,t} + \beta_{22} M\_AGC_{i,t} + \beta_{23} M\_FCF_{i,t} \\
& + \beta_{24} M\_GROW\_MB_{i,t} + \beta_{25} M\_GROW\_PT_{i,t} + \beta_{26} M\_SR_{i,t} + \beta_{27} M\_ATR_{i,t} \\
& + \beta_{28} M\_TAX\_CLTL_{i,t} + \beta_{29} M\_CFV_{i,t} + \beta_{30} M\_PROF_{i,t} + \beta_{31} M\_BETA_{i,t} \\
& + \beta_{32} M\_SIZE_{i,t} + \beta_{33} M\_CVA_{i,t} + \beta_{34} M\_AGE_{i,t} + \beta_{35} M\_LTD_{i,t} + \varepsilon_{i,t}
\end{aligned}
$$

	DIVR $_{i,t}$									
	AU		**US**		**JP**		**UK**		**ML**	
	Coeff	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.24	-0.70	-0.77	**-2.11**	0.01	0.05	0.35	1.07	0.00	0.02
MULT $_{i,t}$	-0.68	-1.03	0.61	1.20	-0.55	-1.42	-0.44	-1.11	-0.47	**-2.20**[b]
DIVER $_{i,t}$	-0.06	**-2.72**[b]	0.03	**2.22**	0.00	-0.27	-0.01	-0.45	-0.01	-0.55
FX $_{i,t}$	0.10	1.28	0.14	**2.29**	0.16	1.07	-0.06	-1.06	-0.01	-0.14
PR $_{i,t}$	0.00	0.95	0.01	**3.79**	0.00	0.10	0.00	-0.52	0.00	0.63
AGC $_{i,t}$	0.02	0.96	-0.10	**-3.45**	0.01	0.49	-0.01	-0.57	0.00	0.28
FCF $_{i,t}$	0.00	-0.33	0.00	-0.84	-0.21	-1.55	0.00	-0.14	-0.01	-1.55
GROW_MB $_{i,t}$	0.00	0.53	0.00	**-3.62**	0.00	**2.52**[b]	0.00	**-6.61**[a]	0.00	0.54
GROW_PT $_{i,t}$	-0.01	-1.14	-0.03	-0.46	0.00	**3.02**[a]	0.07	**2.23**[b]	0.02	1.06
SR $_{i,t}$	0.03	**2.99**[a]	0.07	**4.90**	0.08	**6.18**[a]	0.03	**4.38**[a]	0.03	**9.43**[a]
ATR $_{i,t}$	0.00	-0.42	0.01	0.76	0.04	**2.58**[b]	0.04	**2.26**[b]	0.00	**6.10**[a]
TAX_CLTL $_{i,t}$	0.57	**2.11**[b]	0.00	1.65	0.00	0.09	-0.23	-1.34	0.02	0.48
CVF $_{i,t}$	-4.21	**-4.16**[a]	-5.02	**-2.50**	-8.89	**-7.03**[a]	-2.87	**-2.75**[a]	-2.30	**-5.56**[a]
PROF $_{i,t}$	0.03	**3.25**[a]	0.15	1.20	1.27	**4.10**[a]	0.25	**3.18**[a]	0.11	**2.86**[a]
BETA $_{i,t}$	0.35	**1.83**[c]	-0.16	-1.55	-0.05	-0.47	-0.01	-0.03	0.18	**2.20**[a]
SIZE $_{i,t}$	0.07	**4.46**[a]	0.03	**2.22**[b]	0.01	1.28	0.02	1.27	0.01	**1.71**[c]

CVA$_{i,t}$	0.01	0.10	-0.03	-0.42	-0.01	-0.17	-0.03	-0.45	0.02	1.06
AGE$_{i,t}$	-0.03	-1.34	0.04	**2.94**[a]	0.09	**3.69**[a]	0.03	**2.42**[b]	0.03	**4.26**[a]
LTD$_{i,t}$	-0.12	-1.36	0.08	1.53	-0.05	-1.03	-0.10	-1.44	-0.10	**-5.90**[a]
M_DIVER$_{i,t}$	0.03	0.92	0.04	**2.05**[b]	0.00	0.08	0.00	-0.08	0.01	0.84
M_FX$_{i,t}$	-0.21	-1.61	-0.04	-0.52	-0.10	-0.63	0.11	1.52	0.00	0.05
M_PR$_{i,t}$	0.00	0.61	-0.01	**-2.46**[b]	0.00	1.18	0.00	0.88	0.01	**2.07**[b]
M_AGC$_{i,t}$	0.05	1.00	0.09	**1.96**[b]	0.01	0.74	0.04	**2.27**[b]	-0.02	-1.54
M_FCF$_{i,t}$	0.00	-0.11	0.01	1.38	0.21	1.53	-0.01	-0.67	0.01	0.21
M_GROW_MB$_{i,t}$	0.00	-0.12	0.00	0.51	0.00	1.61	0.00	0.21	-0.03	-5.71
M_GROW_PT$_{i,t}$	-0.04	-0.47	0.03	0.47	0.00	-1.26	-0.06	-1.33	0.04	0.87
M_SR$_{i,t}$	-0.01	-0.73	0.04	**2.04**[b]	0.02	0.95	0.00	-0.53	-0.01	-1.42
M_ATR$_{i,t}$	0.07	0.77	-0.01	-0.61	0.03	1.15	-0.03	**-1.74**[c]	0.03	**4.39**[a]
M_TAX_CLTL$_{i,t}$	0.94	**1.95**[c]	-0.10	**-10.43**[a]	0.00	0.28	0.00	-0.01	1.08	**2.51**[b]
M_CVF$_{i,t}$	4.67	**1.73**[c]	-2.10	-0.86	2.93	1.73	-1.50	-1.12	-1.81	**-1.69**[c]
M_PROF$_{i,t}$	0.18	1.47	0.50	**2.29**[b]	-0.18	-0.48	-0.14	-1.50	0.10	0.89
M_BETA$_{i,t}$	0.11	0.35	0.18	1.32	-0.10	-0.75	0.14	0.68	0.09	0.44
M_SIZE$_{i,t}$	0.00	0.10	-0.02	-1.14	0.01	1.29	0.01	0.85	0.02	**2.00**[b]
M_CVA$_{i,t}$	-0.22	-1.55	0.13	1.22	0.08	0.92	0.07	0.76	-0.04	-0.61
M_AGE$_{i,t}$	0.05	0.97	0.07	**3.44**[a]	-0.03	-0.92	-0.02	-0.98	0.00	-0.04
M_LTD$_{i,t}$	-0.23	-1.44	-0.12	-1.59	-0.04	-0.56	0.12	1.28	-0.08	**-1.93**[c]
Adj R-sqr	0.44		0.28		0.23		0.32		0.22	
No. of Obs	2248		2788		1907		2188		2825	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

6.7.4 Country, Tax Law and Legal Regime Effect on Cash Dividends and Multinationality

Table 6.8 provides comparisons between dividend payout ratio and the effect of multinationality across the sample countries. As discussed earlier, firms with more growth options tend to pay lower dividends because investments and dividends are linked through the firms' cash flow identity. Given multinational corporations across different countries face different degrees of investment and growth opportunities, it is possible that the dichotomous variable of multinationality will isolate that effect.

The controlling dichotomous country variable suggest that the cash dividend payment ratio coefficient is significantly higher in a ranking order of Australia, U.S., U.K., Japan and Malaysia (t=4.92, t=4.81, t=4.27, t=4.18 and t=2.67 respectively). As indicated by the results, all the dummy variables for firms in Australia (*Country_AU*), United States (*Country_US*), Japan (*Country_JP*), United Kingdom (*Country_UK*) and Malaysia (*Country_ML*) are statistically significant and positively related to cash dividend payout ratio. The country affect on total dividends show that U.S. is the only country which pay relatively higher total dividends compared to rest of the four sample countries. These findings indicate that firms in different countries follow statistically different dividend policies, because each country has different country-specific factors which may lead it to establish different dividend policies.

As per taxation policy, Australia is a dominant imputation tax country after U.K. U.K. had an imputation tax system until 1997. The principal difference in the taxation of corporate profits among the sample countries relates to the nature of the corporate tax system. The U.S. operates the classical tax system, under which profits are distributed in the form of dividends and are fully taxed twice, once at the corporate level, and again at the shareholder level. On the other hand, Australia adopts a full imputation tax system, which provides shareholders with full credit for the tax paid by corporations. U.K. adopts partial imputation tax system where partial credit is given to shareholders in respect of corporate tax paid on distributed profits. The impact of dividend imputation (*IMPUTATION_TAX*) states that the countries which exercise imputation tax systems pay significantly higher cash dividend payout ratios (t=4.42) and also dividends (t=1.98).

The significant positive relationship with both cash dividends and dividends payout ratios (t=4.22 and t=7.24) suggest that corporation that operate under the common law system have the tendency of paying relatively and significantly higher dividends to shareholders relative to firms in civil law countries, because dividends are an outcome of effective legal protection of shareholders, which enables minority shareholders to extract dividends payments from corporate insiders. These findings suggest that an effective legal system allows investors to pressure managers to disgorge dividends when the firms do not have good investment opportunities. This is consistent with agency theory that La Porta et al. (2000) put forward.

Table 6.8
Country effect, different tax and legal regime effect in determining cash dividend and total dividend for 5 sampled countries

This table reports the results of OLS regression using mainly (Model II) in addition to country, tax regime and legal regimes effect to obtain the parameters and t-statistics accordingly for the sample of 2248 (994 DCs and 1254 MCs separately) listed companies in the Australian Stock Exchange over 10 years to 2004. The adjusted R squared indicates the model's goodness of fit.

$$DIVC_{i,t}^{*} = \beta_0 + \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 PR_{i,t} + \beta_5 AGC_{i,t} + \beta_6 FCF_{i,t} + \beta_7 GROW\_MB_{i,t} + \beta_8 GROW\_PT_{i,t}$$
$$+ \beta_9 SR_{i,t} + \beta_{10} ATR_{i,t} + \beta_{11} TAX\_CLTL_{i,t} + \beta_{12} CFV_{i,t} + \beta_{13} PROF_{i,t} + \beta_{14} BETA_{i,t} + \beta_{15} SIZE_{i,t} + \beta_{16} CVA_{i,t} + \beta_{17} AGE_{i,t}$$
$$+ \beta_{18} LTD_{i,t} + \beta_{19} \sum Country\_Dummy + \beta_{20} Imputation + \beta_{20} Common\_law + \varepsilon_{i,t}$$

*indicates that this model uses two different measurement of dividend payout ratios which is explained below.
Two dependent variables have been employed and they are: DIVC $_{i,t}$ (cash payout ratios) is calculated using cash dividend paid to net earnings and DIVR $_{i,t}$ (cash and share repurchase dividend payout ratios) is calculated as cash plus change in treasury stock scaled by net earnings. Multinationality (MULT $_{i,t}$) effect is measured where it takes a value of 1 when a corporation is a multinational otherwise it is 0. DIVER $_{i,t}$ (diversification) is the total number of subsidiaries that any firm has within their domicile country and overseas. FX $_{i,t}$ (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. PR $_{i,t}$ (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. AGC $_{i,t}$ (agency cost) is the natural logarithm of total shareholders. FCF $_{i,t}$ (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortization plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. Two growth measures have been used in this study namely GROW_MB $_{i,t}$ (market value of equity to book value of asset) which is measured as market value of asset to book value of asset. And secondly, GROW_PT $_{i,t}$ (past growth) which is measured as the change in total assets over total assets. SR $_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. ATR $_{i,t}$ (average tax ratios) is calculated as total tax paid per annum scaled by net profit. TAX_CLTL $_{i,t}$ (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. CFV $_{i,t}$ (cash flow variation) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. SIZE $_{i,t}$ is the natural logarithm of total asset. CVA $_{i,t}$ (collateral value of assets) is the ratio of fixed assets to total assets. *AGE*$_{i,t}$ is the natural logarithm of the age of the firm in years from date of incorporation. *LEVERAGE*$_{i,t}$ is the ratio of long-term debt to long-term debt plus market value of equity. Model II adds a dummy variable in addition to common eighteen variables to capture multinationality. For example, other attributes: inflation, interest rates, restrictions on the quantity of amount DCs and MCs can borrow overseas, debt market efficiency and borrowing costs to finance dividend payments which FX, PR and DIVER do not capture. To control for country effect and different tax and legal regimes, a dichotomous variable is used.

	DIVC$_{i,t}$						***DIVR***$_{i,t}$					
	Coeff	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C			-0.23	**-5.31**[a]	-0.16	**-3.38**[a]			-0.41	**-6.72**[a]	-0.67	**-9.50**[a]
MULT$_{i,t}$	-0.01	**-1.73**[a]	-0.01	**-1.82**[a]	-0.02	**-2.41**[a]	-0.02	**-1.85**[a]	-0.07	**-5.83**[a]	-0.06	**-4.74**[a]
DIVER$_{i,t}$	0.00	0.52	0.00	**1.88**[a]	0.01	**2.35**[a]	0.02	**4.16**[a]	0.04	**9.28**[a]	0.03	**8.41**[a]
FX$_{i,t}$	-0.01	-0.80	0.00	0.17	0.01	1.01	0.07	**3.91**[a]	0.10	**5.52**[a]	0.08	**4.23**[a]
PR$_{i,t}$	0.00	**-1.65**[a]	0.00	**6.99**[a]	0.00	**7.34**[a]	0.00	1.35	0.01	**6.90**[a]	0.01	**8.62**[a]
AGC$_{i,t}$	0.00	-0.73	0.01	**1.67**[a]	0.01	**2.84**[a]	-0.02	**-3.48**[a]	0.02	**3.52**[a]	0.01	**1.87**[a]
FCF$_{i,t}$	0.00	**15.39**[a]	0.00	**16.19**[a]	0.00	**16.33**[a]	0.00	**12.76**[a]	0.00	**12.70**[a]	0.00	**12.71**[a]
GROW_MB$_{i,t}$	0.00	1.33	0.00	**4.04**[a]	0.00	0.09	0.00	0.90	0.00	-0.32	0.00	**2.96**[a]
GROW_PT$_{i,t}$	0.00	**3.24**[a]	0.00	**2.57**[a]	0.00	**3.36**[a]	0.00	**3.25**[a]	0.00	**2.82**[a]	0.00	1.61
SR$_{i,t}$	0.04	**16.95**[a]	0.04	**17.54**[a]	0.04	**17.51**[a]	0.04	**15.42**[a]	0.04	**15.76**[a]	0.04	**14.56**[a]
ATR$_{i,t}$	0.00	1.93[a]	0.00	**1.92**[a]	0.00	**1.93**[a]	0.00	**2.42**[a]	0.00	**2.44**[a]	0.00	**2.42**[a]
TAX_CLTL$_{i,t}$	0.00	3.58[a]	0.00	**4.42**[a]	0.00	**3.95**[a]	0.00	**2.29**[a]	0.00	**2.73**[a]	0.00	**3.22**[a]
CVF$_{i,t}$	-3.98	**-14.77**[a]	-4.02	**-15.47**[a]	-4.08	**-15.50**[a]	-5.62	**-14.29**[a]	-5.41	**-13.37**[a]	-5.38	**-13.58**[a]
PROF$_{i,t}$	0.04	**3.50**[a]	0.04	**4.30**[a]	0.04	**4.39**[a]	0.06	**3.80**[a]	0.07	**4.02**[a]	0.06	**4.30**[a]
BETA$_{i,t}$	0.00	0.01	0.01	0.41	0.02	0.77	-0.01	-0.18	0.27	**7.26**[a]	0.22	**6.03**[a]
SIZE$_{i,t}$	0.01	**6.64**[a]	0.01	**9.94**[a]	0.01	**5.84**[a]	0.02	**7.03**[a]	0.02	**11.44**[a]	0.03	**14.03**[a]
CVA$_{i,t}$	0.07	**4.99**[a]	0.06	**4.42**[a]	0.06	**4.45**[a]	0.04	**1.87**[a]	0.05	**2.58**[a]	0.05	**2.51**[a]
AGE$_{i,t}$	0.02	**4.97**[a]	0.02	**6.88**[a]	0.02	**4.73**[a]	0.05	**10.30**[a]	0.03	**6.96**[a]	0.05	**9.19**[a]
LTD$_{i,t}$	-0.02	**-1.80**[a]	-0.03	**-2.81**[a]	-0.02	-1.58	-0.06	**-4.12**[a]	-0.02	-1.64	-0.05	**-3.51**[a]
COUNTRY_AUS	0.30	**4.92**[a]					0.06	0.64				
COUNTRY_USA	0.25	**4.18**[a]					0.25	**2.96**[a]				
COUNTRY_JPN	0.25	**4.27**[a]					0.00	-0.02				
COUNTRY_GBR	0.29	**4.81**[a]					-0.02	-0.27				
COUNTRY_MYS	0.14	**2.67**[a]					-0.09	-1.14				
IMPUTATIOM_TAX			0.05	**4.42**[a]					0.03	**1.98**[a]		
COMMON_LAW					0.04	**4.22**[a]					0.11	**7.24**[a]
Adj R-sqr	0.26		0.25		0.25		0.28		0.24		0.25	
No. of Obs	11956		11956		11956		11956		11956		11956	

The proposed model in each of the regression equation appears to explain well and the variation of explanatory power ranges between 0.24 to 0.28. The explanatory variable and the significance level remain similar relative to earlier results.

6.7.5 Cross-country Partial Adjustment Test of Cash Dividends Payouts

Table 6.9 presents the results of estimating the partial speed of adjustment factors (*SPEED*) in the Lintner model across DCs and MCs of five sample countries. As mentioned earlier, Lintner (1956) argues that a firm's dividend changes respond only partially to the difference between the firm's target dividend and the past values of its dividends, a response based on the speed of adjustment factor (*SPEED*) of current dividends to the target dividends. The speed of adjustment factor (*SPEED*) indicates how responsive the firm's dividends are to changes in earnings. A higher value of (*SPEED*) implies a speedier adjustment. Thus, conservative firms will have a lower adjustment rate, while less conservative firms will have a higher adjustment rate. It would be interesting to see whether DCs and MCs across countries have higher speed of partial adjustment towards their target cash dividend payments.

The speed of adjustment factor (*SPEED*) in each model is a coefficient of the difference between the target dividend payment (D_t^*) and the past dividend (D_{t-1}); that is, *SPEED* $(D_t^* - D_{t-1})$. As discussed before, (D_t^*) is related to current earnings in the Lintner model.

The result in Table 6.9 shows that speed of partial adjustment are all statistically significant across DCs and MCs across countries; however, the magnitude of the coefficient (*SPEED*) factor varies across DCs and MCs.

Table 6.9
Test of partial adjustment (Lintner 1956) towards target cash dividend payout for DCs and MCs across 5 countries

This table presents the Lintner (1956) model to capture the speed of adjustment of target payout ratios. a_i, c_i, indicates the constant and speed of adjustment towards the target level of cash dividend payments. The details of this model (V) are outlined in the methodology section of this chapter. Note that Model IV is only tested on cash dividend payments as Lintner (1956) did not investigate share repurchase mode of dividend payments.

$$\Delta D_{it} = a_i + c_i(D^*_{i,t} - D_{i,t-1}) + \mu_{i,t}$$

	DCs										MCs									
Cash Dividend	**AU**		**US**		**JP**		**UK**		**ML**		**AU**		**US**		**JP**		**UK**		**ML**	
	Coeff	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.01	-1.00	0.00	-0.53	-0.01	-0.87	0.00	0.07	-0.01	-1.56	0.00	-0.05	0.00	-0.05	0.00	-0.60	0.00	-0.33	0.00	0.17
SPEED	0.54	**8.17**[a]	0.65	**9.36**[a]	0.84	**24.84**[a]	0.69	**8.42**[a]	0.69	**21.73**[a]	0.62	**4.97**[a]	0.67	**17.98**[a]	0.79	**20.97**[a]	0.68	**14.61**[a]	0.78	**10.99**[a]
Adj R-sqr	0.30		0.37		0.51		0.33		0.36		0.33		0.35		0.49		0.35		0.46	
No. of Obs	994		1371		1093		719		1861		1254		1417		814		1469		964	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

Table 6.10 gives a summary of speed of partial adjustment across DCs and MCs and across countries. It shows that the speed of partial adjustments range between 0.84 (JP) to 0.54 (AU) for DCs and 0.79 (JP) to 0.62 (AU) for MCs. It appears the ranking of countries stays the same when DCs' and MCs' speed of partial adjustment is isolated. While Japanese, Malaysian U.S. and Australian MCs have higher partial speed of adjustment than the DCs, U.K. MCs have marginally lower partial speed of adjustments towards their target.

Table 6.10
Ranking of partial speed of adjustment towards target cash payout across DCs and MCs

DCs		MCs	
Rank - Country	**Speed**	**Rank - Country**	**Speed**
1(JP)	0.84	1(JP)	0.79
2(ML)	0.69	2(ML)	0.78
3(UK)	0.69	3(UK)	0.68
4(US)	0.65	4(US)	0.67
5(AU)	0.54	5(AU)	0.62

6.7.6 Cross-country Industry Effects on Cash Dividends and Multinationality

This section presents industry effect across the countries for DCs and MCs to investigate industry effect on cash dividend payout ratios and dividend, and is presented in Table 6.11. The aim here is to see whether each country's industry has on average a similar effect on debt ratio in DCs and MCs.

The results suggest that industry influence is observed and it appears that the transportation industry in Australia (*IND_E_TRNSPT_CMCTN*) has significant negative (t=-1.76) relationship with cash dividend payments. The wholesale (*IND_F_WHOLESALE*), retail (*IND_G_RETAIL*) and service (*IND_I_SERVIC*) industries have significant and negative relationship (t=-1.79; t=-3.53 and t=-2.26 respectively) on cash dividend payments and this impact is even more on U.S. MCs as it has a negative significant coefficient (t=-1.70). There is no apparent significant relationship in Japan. While the firms in U.K. have significant negative relationship with mining (*IND_B_MINING*) and construction (*IND_C_CONSTRUCTN*) industries, firms in the transportation industry appear to pay significantly higher cash dividend (t=1.67). Similarly, the wholesale industry in Malaysia also pays higher dividends (t=1.86). However, firms in the mining industry on the other hand pay significantly less cash dividends (t=-1.71).

In summary it can be concluded that controlling for industry affect across countries supports the country industry hypothesis that industry effect is significant and varies across countries and also across firms. These findings support Bradley, Jarrell and Kim's (1984) argument that the firms that are more regulated and have high variation in cash flows tend to pay less cash payments, while firms that are relatively stable and less exposed to risk pay high dividends.

Table 6.11
Industry influence on cash dividend payments for DCs and MCs across 5 sampled countries

$$DIVC_{i,t}^{*} = \beta_0 + \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 PR_{i,t} + \beta_5 AGC_{i,t} + \beta_6 FCF_{i,t} + \beta_7 GROW\_MB_{i,t} + \beta_8 GROW\_PT_{i,t} + \beta_9 SR_{i,t} + \beta_{10} ATR_{i,t} + \beta_{11} TAX\_CLTL_{i,t} + \beta_{12} CFV_{i,t} + \beta_{13} PROF_{i,t} + \beta_{14} BETA_{i,t} + \beta_{15} SIZE_{i,t} + \beta_{16} CVA_{i,t} + \beta_{17} AGE_{i,t} + \beta_{18} LTD_{i,t} + \sum Industry_{i,t} + \varepsilon_{i,t}$$

* indicates that this model uses two different measurement of dividend payout ratios which is explained below.
Two dependent variables have been employed and they are: *DIVC* $_{i,t}$ (cash payout ratios) is calculated using cash dividend paid to net earnings and *DIVR* $_{i,t}$ (cash and share repurchase dividend payout ratios) is calculated as cash plus change in treasury stock scaled by net earnings. Multinationality effect is measured where it takes a value of 1 when a corporation is a multinational otherwise it is 0. *DIVER* $_{i,t}$ (diversification) is the total number of subsidiaries that any firm has within their domicile country and overseas. *FX* $_{i,t}$ (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. *PR* $_{i,t}$ (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. *AGC* $_{i,t}$ (agency cost) is the natural logarithm of total shareholders. *FCF* $_{i,t}$ (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortization plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. Two growth measures have been used in this study namely *GROW_MB* $_{i,t}$ (market value of equity to book value of asset) which is measured as market value of asset to book value of asset. And secondly, *GROW_PT* $_{i,t}$ (past growth) which is measured as the change in total assets over total assets. SR$_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. *ATR* $_{i,t}$ (average tax ratios) is calculated as total tax paid per annum scaled by net profit. *TAX_CLTL* $_{i,t}$ (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. *CFV* $_{i,t}$ (cash flow variation) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. *SIZE* $_{i,t}$ is the natural logarithm of total asset. *CVA* $_{i,t}$ (collateral value of assets) is the ratio of fixed assets to total assets. *AGE*$_{i,t}$ is the natural logarithm of the age of the firm in years from date of incorporation. *LEVERAGE*$_{i,t}$ is the ratio of long-term debt to long-term debt plus market value of equity. *SLACK* $_{i,t}$ (financial slack) is measured as the sum of cash balances and marketable securities scaled by the market value of equity. Model II incorporates a dummy variable in addition to common eighteen variables to capture multinationality. There are eight industries in the sample and a dichotomous variable is used to capture each of these the industry effect on dividend payout ratios. The industries are: *IND_A_AGRI_FISH* (Agricultural, Forestry and Fishing); *IND_B_MINING* (Metal, Coal, Oil and Gas); *IND_C_CONSTRUCTN* (Building constructions and Heavy constructions); *IND_D_MNFCTRNG* (Manufacturing, Food, Tobacco, Textiles, Furniture and Fixtures and Papers); *IND_E_TRNSPT_CMCTN* (Transport, Communication, Electric, and Utilities); *IND_F_WHOLESALE* (Wholesale trade and durable goods); *IND_G_RETAIL* (Retails) and *IND_I_SERVIC* (health, Legal, Educational, Engineering and Social).

	DIVC$_{i,t}$									
	AU		**US**		**JP**		**UK**		**ML**	
	Coeff	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.09	-0.32	0.16	1.32	0.17	1.16	0.09	0.53	-0.09	-0.97
MULT$_{i,t}$	0.05	1.23	-0.02	**-1.70**[a]	-0.01	-0.73	-0.02	-1.02	0.00	-0.17
DIVER$_{i,t}$	-0.06	**-4.32**[a]	0.00	-0.24	0.01	1.32	0.00	-0.35	0.00	-0.54
FX$_{i,t}$	-0.01	-0.26	0.01	0.52	-0.05	-1.46	0.03	1.13	-0.04	-1.50
PR$_{i,t}$	0.00	0.86	0.00	-0.08	0.00	**-1.83**[c]	0.00	0.19	0.00	1.40
AGC$_{i,t}$	0.03	1.56	-0.03	**-2.62**[a]	0.00	0.43	0.01	1.64	0.00	-0.88
FCF$_{i,t}$	0.00	-0.50	0.00	**4.82**[a]	0.00	-0.57	-0.01	-0.97	0.00	-1.51
GROW_MB$_{i,t}$	0.00	0.73	0.00	0.07	0.00	1.11	0.00	**-4.05**[a]	0.00	1.07
GROW_PT$_{i,t}$	-0.01	-0.68	0.00	0.65	0.00	**2.96**[a]	0.02	0.93	0.02	1.16
SR$_{i,t}$	0.03	**3.47**[a]	0.09	**10.45**[a]	0.08	**10.03**[a]	0.03	**6.02**[a]	0.03	**10.52**[a]
ATR$_{i,t}$	0.00	0.14	0.00	**12.46**[a]	0.04	**4.00**[a]	0.01	**2.64**[a]	0.00	**4.46**[a]
TAX_CLTL$_{i,t}$	0.82	3.60	0.00	**4.39**[a]	0.00	-1.43	-0.36	**-2.85**[a]	0.05	**2.26**[b]
CVF$_{i,t}$	-3.97	**-4.62**[a]	-2.94	**-4.27**[a]	-4.20	**-6.71**[a]	-3.71	**-5.78**[a]	-1.90	**-5.50**[a]
PROF$_{i,t}$	0.03	**3.90**[a]	-0.01	-0.29	0.32	**2.72**[a]	0.13	**2.80**[a]	0.11	**2.89**[a]
BETA$_{i,t}$	0.06	0.47	-0.04	-1.30	0.11	**2.11**[a]	0.09	0.91	0.14	**1.99**[b]
SIZE$_{i,t}$	0.06	**4.57**[a]	0.02	**4.52**[a]	0.01	**4.05**[a]	0.03	**3.49**[a]	0.01	**3.02**[a]
CVA$_{i,t}$	0.03	0.46	0.01	0.33	0.05	1.26	-0.01	-0.25	0.03	1.55
AGE$_{i,t}$	-0.02	-0.89	0.02	**3.65**[a]	0.04	**3.11**[a]	0.02	**2.32**[a]	0.02	**3.56**[a]
LTD$_{i,t}$	-0.17	**-2.53**[a]	-0.02	-0.84	-0.05	**-2.19**[a]	-0.04	-0.95	-0.10	**-7.15**[a]
IND_A_AGRI_FISH	-0.02	-0.16	0.06	0.46	0.10	0.71	0.12	1.35	-0.02	-0.67
IND_B_MINING	-0.10	-1.00	0.02	0.40	-0.02	-0.23	-0.11	**-1.82**[a]	-0.12	**-1.71**[a]
IND_C_CONSTRUCTN	-0.13	-1.23	0.07	1.47	0.05	1.08	-0.12	**-2.08**[a]	0.00	-0.13
IND_D_MNFCTRNG	-0.04	-0.44	-0.02	-0.67	0.03	0.63	0.01	0.14	0.01	0.62
IND_E_TRNSPT_CMCTN	-0.19	**-1.76**[c]	-0.01	-0.35	0.05	1.22	0.11	**1.67**[c]	0.00	-0.11
IND_F_WHOLESALE	0.02	0.20	-0.06	**-1.79**[c]	0.01	0.19	0.05	0.91	0.05	**1.86**[c]
IND_G_RETAIL	0.09	0.71	-0.12	**-3.53**[a]	0.04	0.98	0.04	0.77	0.01	0.21
IND_I_SERVIC	-0.02	-0.22	-0.07	**-2.26**[a]	-0.04	-0.88	-0.02	-0.42	-0.02	-0.80
Adj R-sqr	0.41		0.48		0.26		0.33		0.21	
No. of Obs	2248		2788		1907		2188		2825	

6.7.7 Cross-country Time Variation Effect on Cash Dividends and Multinationality

Table 6.12 presents the overall time effect on dividend payments across five countries. The time period reported here is chosen to be 1999-2004 since there is no major variation in the time yearly coefficients (*YR*) after controlling for multinationality. Table 6.12 shows a univariate regression that tests the yearly effect on cash dividend payments to investigate the hypothesis of whether time has any significant effect on dividend payments to isolate any significant economic-related issues like the Asian crisis or the incident of a 7/11 in the U.S. The result shows that over time DCs across countries dividend payments decrease significantly. For example, DCs in Australia experienced significant decrease during 2002-2004 (t=-2.36; t=-4.16 and -3.74 respectively). A similar pattern is also observed in U.S., Japan and Malaysia. It is also noticeable that the MCs in Japan experienced paying significantly less cash dividends than the DCs counterparts. This suggest that, overall, time has a mixed impact on DCs' and MCs' cash dividends payments and it shows that time has a mixed impact on DCs' and MCs' dividend payments. These findings support the time effect hypothesis for DCs and MCs. A further analysis of individual year effects has been investigated to identify whether time effect has any significant variation on cash dividend payments determinants, which might cause dividend payments to vary.

Table 6.12

Time variation impact cash dividend payout for DCs and MCs across 5 sampled countries

This table reports the results of OLS regression using mainly (Model II) in addition to country, tax regime and legal regimes effect to obtain the parameters and t-statistics accordingly for the sample of 2248 (994 DCs and 1254 MCs separately) listed companies in the Australian Stock Exchange over 10 years to 2004. The adjusted R squared indicates the model's goodness of fit.

$$DIVC_{i,t}^{*} = \beta_0 + \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 PR_{i,t} + \beta_5 AGC_{i,t} + \beta_6 FCF_{i,t} + \beta_7 GROW\_MB_{i,t} + \beta_8 GROW\_PT_{i,t} + \beta_9 SR_{i,t} + \beta_{10} ATR_{i,t}$$
$$+ \beta_{11} TAX\_CLTL_{i,t} + \beta_{12} CFV_{i,t} + \beta_{13} PROF_{i,t} + \beta_{14} BETA_{i,t} + \beta_{15} SIZE_{i,t} + \beta_{16} CVA_{i,t} + \beta_{17} AGE_{i,t} + \beta_{18} LTD_{i,t} + \beta_{19} \sum Industry_{i,t} + \varepsilon_{i,t}$$

Two dependent variables have been employed and they are: DIVC $_{i,t}$ (cash payout ratios) is calculated using cash dividend paid to net earnings and DIVR $_{i,t}$ (cash and share repurchase dividend payout ratios) is calculated as cash plus change in treasury stock scaled by net earnings. Multinationality (MULT $_{i,t}$) effect is measured where it takes a value of 1 when a corporation is a multinational otherwise it is 0. DIVER $_{i,t}$ (diversification) is the total number of subsidiaries that any firm has within their domicile country and overseas. FX $_{i,t}$ (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. PR $_{i,t}$ (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. AGC $_{i,t}$ (agency cost) is the natural logarithm of total shareholders. FCF $_{i,t}$ (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortization plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. Two growth measures have been used in this study namely GROW_MB $_{i,t}$ (market value of equity to book value of asset) which is measured as market value of asset to book value of asset. And secondly, GROW_PT $_{i,t}$ (past growth) which is measured as the change in total assets over total assets. SR $_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. ATR $_{i,t}$ (average tax ratios) is calculated as total tax paid per annum scaled by net profit. TAX_CLTL $_{i,t}$ (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. CFV $_{i,t}$ (cash flow variation) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. $SIZE_{i,t}$ is the natural logarithm of total asset. $CVA_{i,t}$ (collateral value of assets) is the ratio of fixed assets to total assets. $AGE_{i,t}$ is the natural logarithm of the age of the firm in years from date of incorporation. $LEVERAGE_{i,t}$ is the ratio of long-term debt to long-term debt plus market value of equity. Model II adds a dummy variable in addition to common eighteen variables to capture multinationality. For example, other attributes: inflation, interest rates, restrictions on the quantity of amount DCs and MCs can borrow overseas, debt market efficiency and borrowing costs to finance dividend payments which FX, PR and DIVER do not capture. To control for time effect for each year (e.g. 1999, 2000, - 2004) a dichotomous variable is used.

	$DIVC_{i,t}$									
	AU		**US**		**JP**		**UK**		**ML**	
	Coeff	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.08	-0.31	0.24	**1.79**[c]	-0.04	-0.26	0.08	0.45	0.43	**3.57**[a]
$MULT_{i,t}$	0.00	0.10	0.00	-0.25	-0.03	**-1.82**[c]	-0.01	-0.35	-0.01	-0.55
$DIVER_{i,t}$	-0.05	**-4.42**[a]	0.00	-0.59	0.00	1.05	-0.01	-0.69	0.00	-0.40
$FX_{i,t}$	0.00	0.08	0.02	1.03	0.01	0.36	0.01	0.30	0.01	0.47
$PR_{i,t}$	0.00	1.25	0.00	-1.02	0.00	0.06	0.00	0.31	0.00	**-2.30**[a]
$AGC_{i,t}$	0.04	**2.44**[b]	-0.04	**-3.16**[a]	0.00	0.54	0.01	1.36	-0.01	-1.08
$FCF_{i,t}$	0.00	-0.24	0.00	**4.17**[a]	0.00	0.56	-0.01	-0.80	-0.01	-1.50
$GROW\_MB_{i,t}$	0.01	1.14	0.00	-1.11	0.00	1.05	0.00	**-4.76**[a]	0.00	0.68
$GROW\_PT_{i,t}$	-0.01	-0.84	0.00	0.55	0.00	**2.86**[a]	0.02	0.77	0.01	0.98
$SR_{i,t}$	0.03	**3.52**[a]	0.09	**10.72**[a]	0.08	**10.72**[a]	0.03	6.19	0.03	**10.41**[a]
$ATR_{i,t}$	0.00	0.42	0.00	**11.78**[a]	0.04	**3.97**[a]	0.01	**2.64**[a]	0.00	**4.05**[a]
$TAX\_CLTL_{i,t}$	0.81	**3.60**[a]	0.00	**4.44**[a]	0.00	-0.43	-0.30	**-2.41**[b]	0.02	0.57
$CVF_{i,t}$	-4.78	**-5.09**[a]	-3.04	**-3.77**[a]	-4.65	**-6.83**[a]	-4.06	**-5.71**[a]	-2.55	**-6.81**[a]
$PROF_{i,t}$	0.04	**4.90**[a]	-0.01	-0.68	0.40	**3.34**[a]	0.14	**2.99**[a]	0.09	**2.77**[a]
$BETA_{i,t}$	-0.14	-1.14	-0.02	-0.52	0.06	1.05	0.16	1.56	-0.02	-0.23
$SIZE_{i,t}$	0.05	**4.33**[a]	0.02	**4.17**[a]	0.01	**4.24**[a]	0.02	**3.02**[a]	0.01	**1.88**[c]
$CVA_{i,t}$	-0.08	-1.42	0.04	1.56	0.09	**2.96**[a]	0.03	0.83	0.03	1.60
$AGE_{i,t}$	-0.01	-0.57	0.02	**4.24**[a]	0.06	**4.43**[a]	0.02	**2.57**[a]	0.02	**3.60**[a]
$LTD_{i,t}$	-0.15	**-2.23**[b]	0.01	0.27	-0.06	**-2.93**[a]	-0.01	-0.34	-0.08	**-5.65**[a]
YR_99	-0.07	-1.06	0.02	0.94	-0.01	-0.45	0.03	1.09	-0.07	**-3.27**[a]
YR_00	-0.11	**-1.92**[c]	-0.03	-1.45	-0.04	**-1.67**[c]	0.05	1.54	-0.11	**-5.12**[a]
YR_01	-0.01	-0.16	-0.01	-0.62	-0.09	**-4.18**[a]	0.00	-0.04	-0.11	**-5.97**[a]
YR_02	-0.12	**-2.36**[b]	-0.02	-1.11	-0.06	**-3.29**[a]	-0.01	-0.22	-0.15	**-7.96**[a]
YR_03	-0.21	**-4.16**[a]	-0.03	**-2.04**[a]	-0.08	**-4.57**[a]	0.06	**1.80**[c]	-0.05	**-2.25**[b]
YR_04	-0.20	**-3.74**[a]	-0.04	**-2.64**[a]	-0.13	**-8.45**[a]	0.00	-0.15	-0.06	**-3.61**[a]
Adj R-sqr	0.43		0.47		0.27		0.31		0.24	
No. of Obs	2248		2788		1907		2188		2825	

Further, in order to investigate whether cash dividend payments are time sensitive, individual yearly regressions were conducted (shown in Table 6.13); however, they were not reported as the results are identical to earlier results and discussion. However, the following table attempts to test the overall time effect on dividend payments. The result show that the DCs in Australia experienced a significant (t=-5.63) decrease over the last ten years and Malaysian DCs also experienced a downward movement in their dividend payments. In comparison, MCs in any of the sample countries show significant change in the dividend payment pattern and this is indicated by an insignificant result.

Table 6.13
Trend of time effect on cash dividend for DCs and MCs across 5 sampled countries

	DCs - $DIVC_{i,t}$										MCs - $DIVC_{i,t}$									
	AU		US		JP		UK		ML		AU		US		JP		UK		ML	
	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	38.75	**5.68**[a]	0.00	0.50	0.02	**5.20**[a]	6.66	1.07	12.45	**3.29**[a]	-0.02	**-3.92**[a]	0.01	1.13	0.02	**7.35**[a]	2.09	0.49	0.00	-0.97
YR	-0.02	**-5.63**[a]	0.00	0.00	0.00	0.00	0.00	-1.02	-0.01	**-3.24**[a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.40	0.00	0.00
Adj R-sqr	0.02		0.00		0.01		0.00		0.00		0.02		0.00		0.02		0.00		0.00	
No. of Obs	6038		6038		6038		6038		6038		5918		5918		5918		5918		5918	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

6.8 CONCLUSION

This chapter provides first evidence on the determinants of cash dividend and total dividend payout ratios for DCs and MCs across Australia, U.S., Japan, U.K. and Malaysia.

On a univariate analysis, it appears that Australia, U.S., Japan and U.K. have significantly different cash dividends and total dividend payments relative to DCs. Further, test results also show that MCs in both imputational and classical tax system regimes have significantly higher tendency of paying both cash dividends and total dividends. Similarly, MCs in common law countries also pay significantly higher cash dividend and total dividends relative to DCs. In contrast, MCs in civil law countries pay significantly lower cash dividend and total dividends than DCs counterparts. Further, DCs and MCs in civil law countries also pay significantly higher dividends than the DCs and MCs in common law countries. Similarly, DCs and MCs pay significantly higher dividends under the imputational tax regime.

The regression test results of both cash dividend payout and total dividend payout ratios provide significant evidence of multinationality effect in determining the difference of cash dividends and dividends determinants between DCs and MCs across Australia, U.S., Japan, U.K. and Malaysia.

The effect of multinationality of a corporation is considered as a determining factor for dividend distribution across countries and it indicates that the impact of multinationality is explained by various determining factors that vary across countries. The common determinants that mostly explain the difference between DCs' and MCs' cash dividend payout ratios across countries are diversification (Australia and U.S.), agency costs and average tax ratios (U.K. and Malaysia), tax clientele (U.S. and Malaysia), cash flow variation (Japan and Malaysia). When share repurchase is included within the definition, the dividend payout ratios show that the common determinants explaining the difference of DCs' and MCs' dividend payout ratios slightly changes mainly for U.S. corporations, and those additional factors are political risks, stock return, profitability and age. Controlling for fixed country effects shows that all sample countries hold significantly positive relationship with cash dividend payout ratios and U.S. is the only country which higher total dividends relative to other four sample countries. Further, it shows that firms operating in imputation tax system and common law environments pay comparatively higher dividend payout ratios relative to firms operating in classical tax system and common law regimes. It also shows that MCs operating in imputation tax system and common law regime pay significantly lower dividend payout ratios relative to DCs counterparts. Lintner's (1956) model is considered to investigate the difference of speed of adjustment in cash dividends between DCs and MCs across five sample countries. The results suggest that MCs in Australia, U.S. and Malaysia adjust their target dividend payout ratios more than DCs counterparts, while the opposite holds for Japanese and U.K. MCs.

- 7 -
SENSITIVITY

7.1 INTRODUCTION

This chapter focuses on discussing the robustness of the results obtained with regards to both independent and dependent variables definitions and model assumptions in Chapter 4 and Chapter 6. The sensitivity issues that arise due to different measurement are quite interesting because the discrepancies of existing literature. It may be purely driven by different measurements issues. Further, the sensitivity issues that arise include the possibility of heteroscadasticity, outliers, autocorrelation and multicollinearity in the proposed models. Given the statistical issues of outliers, autocorrelation and possible multicollinearity have been considered in describing the distribution of the dataset in the data chapter (Chapter 2), and all the regression coefficients reported have been adjusted for heteroscadasticity, this chapter mainly emphasises on investigating the sensitivity of variable measurement issues and endogenous or interdependent relationship of debt and dividend payout ratios.

It is often argued that dividend, investment and leverage have interrelationships (McCabe, 1979; Dhrymes & Kurz, 1967). Specifically, to the extent that outlays for investment and dividends are viewed as competitive, dividends should have a negative impact on investment. An increase in external financing, on the other hand, should exhibit a positive influence on investment since such an action increases the pool of funds available to competing uses. The aim of this sensitivity chapter is to gain better understanding of the interdependence of financial behaviour and statistical validity of results that has been discussed in the earlier chapters.

7.2 ALTERNATIVE VARIABLE SPECIFICATION

To see whether the results are affected by the selection of alternative measurements, two measurements are considered: long-term debt scaled by total asset and total debt scaled by total asset for the cross country comparison of capital structure (Chapter 4), and one alternative measurement is selected for the cross country comparison of dividend payout ratios (Chapter 6). The sensitivity analysis of the dividend payout ratios (Chapter 6) will be tested by redefining the dependent variable of cash dividend payout ratios scaled by total assets.

No attempt is made in altering any independent variable measurements as the purpose of this thesis is not to resolve the different measurement issues that exist in defining proxies in the existing literature. Further, given no consensus is reached about any particular best measure for any variable, it is decided that the sensitivity of dependent variables only will be tested for sensitivity purpose.

7.2.1 Long-term Debt to Total Asset

Table 7.1 presents the sensitivity test results of different long-term debt ratios measurements. When long-term debt measurement took the form of long-term debt scaled by total asset, a few changes to the coefficient signs and level of significance seem to be obvious in both DCs and MCs (Model I), except for U.S. and Japanese DCs and Japanese and U.K. MCs. This demonstrates that the initial measurement is not biased towards alternative measurements that are used for the purpose of the sensitivity. Further, the explanatory powers of DCs and MCs regression seems compatible compared to the original results across countries that reported in Chapter 4.

Table 7.1

Sensitivity measurements of long-term debt to total asset across 5 sampled countries

This table reports the variables and expected signs of the hypotheses. There is one dependent variable and fifteen independent variables. The following model is utilized:

$$LTDTA_{i,t} = \beta_0 + \beta_1 DIVER_{i,t} + \beta_2 FX_{i,t} + \beta_3 PR_{i,t} + \beta_4 BPTCY_{i,t} + \beta_5 BETA_{i,t} + \beta_6 NDTS_{i,t} + \beta_7 ATR_{i,t} + \beta_8 SIZE_{i,t}$$
$$+ \beta_9 CVA_{i,t} + \beta_{10} AGE_{i,t} + \beta_{11} PROF_{i,t} + \beta_{12} DIV_{i,t} + \beta_{13} AGC_{i,t} + \beta_{14} FCF_{i,t} + \beta_{15} GROW\_MB_{i,t} + \varepsilon_{i,t}$$

The dependent variable is measured as total long-term debt to total assets which is indicated by $LTDTA_{i,t}$. The independent variables are measured in the following manner: $DIVER_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. $FX_{i,t}$ – *foreign exchange risk* is measured as a ratio of foreign sales to total sales. $PR_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. $BPTCY_{i,t}$ – *bankruptcy risk* is measured as the standard deviation of last five years earrings volatility of firm's earnings before interest and taxes. $BETA_{i,t}$ – *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index – market model. NDTS (Non-Debt Tax Shield) is calculated by total annual depreciation expense over total assets. $ATX_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. $SIZE_{i,t}$ – *size* variable is measured as natural logarithm of total assets. $CVA_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. $AGE_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until the year of analysis. $PROF_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. $DIV_{i,t}$ – *dividend payout ratios* is a ratio of total cash dividend paid to net income (note losses made any year has been deleted from sample). $AGC_{i,t}$ is defines as is the natural logarithm of total shareholders. $FCF_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. $GROW_{i,t}$ – *growth* is the market value of assets over total assets.

LTD/TA	AU – DCs		US - DCs		JP - DCs		GB – DCs		MY - DCs		AU - MCs		US - MCs		JP - MCs		GB - MCs		MY – MCs	
Variable	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.10	-0.70	0.51	**4.41**[a]	0.29	**2.61**[a]	0.17	1.13	-0.07	-1.16	-0.37	-1.63	-0.18	**-1.76**[c]	0.49	**5.65**[a]	-0.45	**-4.65**[a]	-0.06	-0.42
DIVER i,t	0.01	1.52	0.01	1.31	-0.01	**-2.21**[a]	0.00	0.07	-0.02	**-3.03**[a]	-0.02	**-2.49**[a]	0.00	1.04	0.02	**8.07**[a]	0.00	-0.66	-0.01	**-1.88**[c]
FX i,t	-0.10	**-3.35**[a]	-0.09	**-4.58**[a]	-0.11	**-2.60**[a]	0.02	1.26	0.04	**2.60**[a]	-0.03	-0.91	0.00	0.27	-0.01	-0.33	0.00	-0.04	-0.02	-0.67
PR i,t	0.00	0.32	-0.01	**-4.75**[a]	0.00	**-3.29**[a]	0.00	-1.42	0.00	-0.69	0.00	0.83	0.00	1.00	0.00	**-3.78**[a]	0.00	**4.02**[a]	0.00	0.28
BPTCY i,t	0.00	-0.04	0.00	**-7.43**[a]	0.00	**-4.73**[a]	0.00	**-3.73**[a]	0.00	**-2.45**[a]	0.00	-0.26	0.00	**-1.92**[c]	0.00	**-2.54**[a]	0.00	**-3.18**[a]	-0.01	**-4.84**[a]
BETA i,t	-0.08	-0.94	-0.12	**-4.04**[a]	-0.06	-1.41	0.08	1.32	-0.02	-0.45	-0.13	-1.42	-0.10	**-5.09**[a]	0.06	**2.03**[b]	-0.13	**-2.25**[b]	0.12	1.24
ATR i,t	-0.24	-1.45	0.47	1.19	-0.20	-1.01	-0.39	**-3.00**[a]	0.38	1.32	0.06	0.16	-1.01	**-5.43**[a]	**-1.81**[c]	**-8.75**[a]	-0.03	-0.48	0.08	0.19
NDTS i,t	0.00	**3.02**[a]	0.00	-0.68	0.00	0.92	0.00	-1.38	0.00	**3.48**[a]	0.00	-0.54	0.00	**8.40**[a]	0.00	-0.42	0.00	**-1.86**[c]	0.00	1.09
SIZE i,t	0.05	**7.62**[a]	0.02	**5.80**[a]	0.00	-0.44	0.01	**2.38**[a]	0.04	**12.48**[a]	0.05	**4.47**[a]	0.01	**2.93**[a]	0.00	**-1.89**[c]	0.04	**8.08**[a]	0.02	**2.64**[a]
CVA i,t	0.12	**3.29**[a]	0.15	**5.48**[a]	0.55	**21.12**[a]	0.18	**4.73**[a]	0.11	**6.57**[a]	0.00	-0.02	0.24	**11.40**[a]	0.41	**13.14**[a]	0.04	1.60	0.10	**1.76**[c]
AGE i,t	-0.04	**-3.83**[a]	0.00	-0.70	0.00	-0.24	0.00	0.42	-0.01	**-2.01**[b]	0.02	0.94	0.00	-0.35	-0.01	-1.48	0.00	0.41	0.02	**1.95**[b]
PROF i,t	-0.03	-1.63	-0.03	-0.67	-1.13	**-8.27**[a]	-0.01	-0.58	-0.16	**-2.88**[a]	-0.07	-0.88	-0.48	**-7.38**[a]	-0.83	**-4.16**[a]	-0.03	-1.40	0.03	0.25
DIV i,t	-0.07	**-2.71**[a]	0.00	0.23	0.01	0.70	-0.04	**-1.80**[c]	-0.10	**-7.51**[a]	-0.09	**-2.07**[b]	0.04	**3.22**[a]	-0.01	-0.82	0.00	0.13	-0.11	**-3.58**[a]
FCF i,t	-0.05	**-2.42**[a]	0.00	**-2.82**[a]	0.02	0.48	-0.01	-0.96	0.00	**2.08**[b]	-0.10	**-2.99**[a]	0.00	**-23.76**[a]	0.00	**-3.57**[a]	0.00	0.01	-0.07	**-2.83**[a]
GROW_MB i,t	0.00	**-1.70**[c]	0.00	**7.55**[a]	0.00	**6.01**[a]	0.00	**3.83**[a]	0.00	**2.26**[b]	0.00	-0.72	0.00	**2.74**[a]	0.00	-0.66	0.00	**2.86**[a]	0.02	**2.85**[a]
No. of Obs	0.48		0.20		0.52		0.25		0.19		0.59		0.27		0.35		0.25		0.31	
Adj R-sqr	994		1371		1093		719		1861		1254		1417		814		1469		964	

a, b and c represents 1%, 5% and 10% level of statistical significance respectively.

7.2.2 Total Debt

Table 7.2 provides a sensitivity analysis of total debt scaled by book value of total assets. The impact of this altered dependent variable measurement shows slightly different results, especially the size effect on DCs in the U.K. and U.S. For example, in U.K. and U.S., the DCs do not show a significant positive relationship with total debt. This may be due to scaling the total debt with total assets, as total assets is used to scale a few other independent variables that might have caused the inconsistency in size effect results; however, the sign of this coefficient remained consistent. The rest of the coefficients have expected signs and are similarly as significant as the original models. The adjusted R^2 shows a mixed result; for example, the explanatory power increased from 0.33 to 0.47, 0.20 to 0.24 and 0.19 to 0.22 for Australian, U.K. and Malaysian DCs respectively. However, the explanatory power decreased from 0.25 to 0.18 and 0.53 to 0.45 for U.K. and Japanese DCs respectively. It appears that this measurement suits Australian and Malaysian MCs better, as the model improved in explaining the variations by the selected coefficients (e.g. adjusted R^2 increased from 0.43 to 0.58 and 0.41 to 0.46) and most of the significance levels of the determinants are consistent with the prior literature.

Table 7.2

Sensitivity analysis of total debt to total asset across 5 sampled countries

This table reports the variables and expected signs of the hypotheses. There is one dependent variable and fifteen independent variables. The following model is utilized:

$$TDA_{i,t} = \beta_0 + \beta_1 DIVER_{i,t} + \beta_2 FX_{i,t} + \beta_3 PR_{i,t} + \beta_4 BPTCY_{i,t} + \beta_5 BETA_{i,t} + \beta_6 NDTS_{i,t} + \beta_7 ATR_{i,t} + \beta_8 SIZE_{i,t} + \beta_9 CVA_{i,t}$$
$$+ \beta_{10} AGE_{i,t} + \beta_{11} PROF_{i,t} + \beta_{12} DIV_{i,t} + \beta_{13} FCF_{i,t} + \beta_{14} GROW\_MB_{i,t} + \varepsilon_{i,t}$$

The dependent variable is measured as total debt to total assets which is indicated by $TDA_{i,t}$. The variables are measured in the following manner: The independent variables are measured in the following manner: $DIVER_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. $FX_{i,t}$ – *foreign exchange risk* is measured as a ratio of foreign sales to total sales. $PR_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. $BPTCY_{i,t}$ – *bankruptcy risk* is measured as the standard deviation of last five years earrings volatility of firm's earnings before interest and taxes. $BETA_{i,t}$ – *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index – market model. $NDTS_{i,t}$ (Non-Debt Tax Shield) is calculated by total annual depreciation expense over total assets. $ATX_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. $SIZE_{i,t}$ – *size* variable is measured as natural logarithm of total assets. $CVA_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. $AGE_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until the year of analysis. $PROF_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. $DIVC_{i,t}$ – *dividend payout ratios* is a ratio of total cash dividend paid to net income (note losses made any year has been deleted from sample). $AGC_{i,t}$ is defines as is the natural logarithm of total shareholders. $FCF_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. $GROW_{i,t}$ – *growth* is the market value of assets over total assets. a, b and c represents 1%, 5% and 10% level of statistical significance respectively.

TD/TA	AU – DCs		US - DCs		JP - DCs		GB - DCs		MY - DCs		AU - MCs		US - MCs		JP - MCs		GB - MCs		MY - MCs	
Variable	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	-0.10	-0.69	0.48	**3.90** [a]	0.41	**2.70** [a]	0.25	1.29	0.20	**2.61** [a]	-0.30	-1.32	-0.19	**-1.74** [c]	0.82	**6.86** [a]	-0.39	**-3.68** [a]	0.13	0.92
DIVER $_{i,t}$	0.01	1.20	0.01	**2.00** [b]	0.00	-0.60	0.02	**1.74** [c]	0.00	0.10	-0.02	**-3.23** [a]	0.01	1.46	0.02	**7.65** [a]	0.00	-0.08	-0.01	-0.85
FX $_{i,t}$	-0.10	**-3.09** [a]	-0.08	**-3.81** [a]	-0.19	**-3.26** [a]	0.05	1.25	0.03	1.51	-0.04	-1.29	0.01	0.57	0.00	-0.21	-0.01	-0.44	-0.05	**-1.84** [b]
PR $_{i,t}$	0.00	0.29	-0.01	**-3.82** [a]	-0.01	**-4.37** [a]	0.00	-1.28	0.00	-0.48	0.00	0.84	0.00	1.06	-0.01	**-4.20** [a]	0.00	**3.66** [a]	0.00	1.42
BPTCY $_{i,t}$	0.00	-0.31	0.00	**-6.49** [a]	0.00	**-3.60** [a]	0.00	**-4.11** [a]	0.00	**-2.59** [a]	0.00	-1.07	0.00	**-1.93** [c]	0.00	**-1.97** [b]	0.00	**-3.71** [a]	-0.02	**-5.65** [a]
BETA $_{i,t}$	-0.11	-1.16	-0.15	**-5.07** [a]	-0.04	-0.70	0.01	0.14	-0.01	-0.24	-0.08	-0.85	-0.15	**-7.00** [a]	0.05	1.40	-0.15	**-2.58** [a]	0.17	1.59
ATR $_{i,t}$	-0.09	-0.53	0.40	1.02	0.88	**3.51** [a]	-0.54	**-2.56** [a]	0.04	0.14	0.53	**1.67** [c]	-0.98	**-4.95** [a]	-3.07	**-10.48** [a]	-0.12	-1.63	-0.76	-1.59
NDTS $_{i,t}$	0.00	**4.03** [a]	0.00	-0.11	0.01	**3.03** [a]	0.00	0.89	0.00	**4.40** [a]	0.00	-0.45	0.00	**5.14** [a]	0.00	0.74	0.00	-1.53	0.00	0.68
SIZE $_{i,t}$	0.06	**8.39** [a]	0.02	**5.98** [a]	0.00	-0.43	0.01	0.74	0.02	**5.47** [a]	0.04	**3.37** [a]	0.02	**3.90** [a]	-0.01	**-2.42** [a]	0.04	**6.92** [a]	0.00	-0.26
CVA $_{i,t}$	0.09	**2.44** [a]	0.11	**4.03** [a]	0.50	**15.31** [a]	0.19	**4.60** [a]	0.09	**4.15** [a]	0.02	0.30	0.21	**9.29** [a]	0.59	**14.78** [a]	0.05	**1.87** [b]	0.02	0.41
AGE $_{i,t}$	-0.04	**-3.29** [a]	-0.01	-1.63	0.06	**4.08** [a]	0.01	1.16	-0.01	**-2.29** [b]	0.04	**1.90** [b]	0.01	**2.27** [b]	-0.01	-0.74	0.00	0.68	0.01	0.77
PROF $_{i,t}$	-0.04	**-1.75** [c]	-0.04	-0.84	-2.13	**-10.39** [a]	-0.13	**-1.82** [b]	-0.38	**-5.49** [a]	0.00	0.01	-0.44	**-6.49** [a]	-1.43	**-5.01** [a]	-0.03	-1.49	-0.16	-0.77
DIV $_{i,t}$	-0.10	**-3.65** [a]	0.03	**1.72** [c]	-0.04	**-1.87** [c]	-0.06	**-1.97** [b]	-0.14	**-7.84** [a]	-0.07	-1.56	0.06	**5.24** [a]	-0.05	**-3.09** [a]	0.01	0.52	-0.14	**-3.87** [a]
FCF $_{i,t}$	0.00	0.19	0.03	**2.85** [a]	0.01	**2.20** [b]	0.00	-0.53	-0.02	**-3.18** [a]	0.00	0.20	0.06	**6.70** [a]	-0.01	**-2.27** [b]	0.00	-0.63	0.00	0.19
GROW $_{i,t}$	-0.05	**-2.35** [a]	0.00	**-2.77** [a]	0.07	0.82	-0.02	**-2.39** [a]	0.00	-0.45	-0.11	**-3.25** [a]	0.00	**-27.31** [a]	0.00	**-2.63** [a]	0.00	0.06	-0.09	**-2.43** [a]
	-0.01	**-2.63** [a]	0.00	**6.65** [a]	0.00	1.25	0.00	**4.23** [a]	0.01	**1.86** [c]	0.00	0.59	0.00	**2.80** [a]	0.00	**-1.94** [b]	0.00	**3.05** [a]	0.02	**2.89** [a]
Adj R Sqr	0.47		0.18		0.45		0.24		0.22		0.58		0.24		0.42		0.23		0.46	
No. Obs	994		1371		1093		719		1861		1254		1417		814		1469		964	

7.2.3 Cash Dividends to Total Assets

Table 7.3 shows the sensitivity of cash dividend to total assets. This sensitivity of cash dividend measurement as an independent variable shows different results, especially the coefficient effect on DCs and MCs across countries. For example, in Model I, the number of significant coefficients for Australian, U.S., Japanese, U.K. and Malaysian DCs increased from 7 to 9, 8 to 10, 8 to 16 and 6 to 9 respectively. This may be due to scaling the total debt with total assets, as total assets is used to scale a few other independent variables that might have caused the inconsistency in size effect results; however, the sign of this coefficient remained consistent. The rest of the coefficients have expected signs and are similarly as significant as the original models. The adjusted R^2 indicates a mixed result; for example, the explanatory power increased for both U.S. DCs and MCs while it remained similar for U.K. DCs and MCs. However, the explanatory power decreased for U.S. and Malaysian DCs and MCs respectively. It appears that this measurement suits Australian and Japanese MCs better as the model explains them better (e.g. adjusted R^2 increased from 0.42 to 0.53 and 0.27 to 0.53) and most of the significance levels of the determinants across DCs and MCs across countries produce relatively more promising results as the number of significance across coefficients increased notably.

Table 7.3

Sensitivity analysis of cash dividends measured as cash dividends to total assets for DCs and MCs across 5 sampled countries

This table reports the results of OLS regression (Model I) to obtain the parameters and t-statistics accordingly for the sample of 11956 (6038 DCs and 5918 MCs separately) listed across five stock exchanges namely: Australia, US, Japan, UK and Malaysia Stock Exchange over 10 years to 2004. The adjusted R squared indicates the model's goodness of fit.

$$DIVC_{i,t} = \beta_0 + \beta_1 DIVER_{i,t} + \beta_2 FX_{i,t} + \beta_3 PR_{i,t} + \beta_4 AGC_{i,t} + \beta_5 FCF_{i,t} + \beta_6 GROW\_MB_{i,t} + \beta_7 GROW\_PT_{i,t} + \beta_8 DY_{i,t} + \beta_9 ATR_{i,t}$$
$$+ \beta_{10} TAX\_CLTL_{i,t} + \beta_{11} CFV_{i,t} + \beta_{12} PROF_{i,t} + \beta_{13} BETA_{i,t} + \beta_{14} SIZE_{i,t} + \beta_{15} CVA_{i,t} + \beta_{16} AGE_{i,t} + \beta_{17} LTD_{i,t} + \varepsilon_{i,t}$$

The dependent variables has been employed $DIVCTA_{i,t}$ (cash payout ratios) is calculated using cash dividend paid to total assets. $DIVER_{i,t}$ (diversification) is the total number of subsidiaries that any firm has within their domicile country and overseas. $FX_{i,t}$ (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. $PR_{i,t}$ (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. $AGC_{i,t}$ (agency cost) is the natural logarithm of total shareholders. $FCF_{i,t}$ (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortization plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. Two growth measures have been used in this study namely $GROW\_MB_{i,t}$ (market value of equity to book value of asset) which is measured as market value of asset to book value of asset. And secondly, $GROW\_PT_{i,t}$ (past growth) which is measured as the change in total assets over total assets. $SR_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. $ATR_{i,t}$ (average tax ratios) is calculated as total tax paid per annum scaled by net profit. $TAX\_CLTL_{i,t}$ (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. $CFV_{i,t}$ (cash flow variation) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. *PROF* (Profitability) is the average ratio of net income over total sales for the last three years. $BETA_{i,t}$ - *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index – market model. $SIZE_{i,t}$ is the natural logarithm of total asset. $CVA_{i,t}$ (collateral value of assets) is the ratio of fixed assets to total assets. $AGE_{i,t}$ is the natural logarithm of the age of the firm in years from date of incorporation. $LEVERAGE_{i,t}$ is the ratio of long-term debt to long-term debt plus market value of equity.

	(DIVC)										(DIVC)									
CashDiv/TA	AU - DCs		US - DCs		JP - DCs		GB - DCs		MY – DCs		AU - MCs		US - MCs		JP - MCs		GB - MCs		MY - MCs	
Variable	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	-0.05	-1.12	0.03	**2.33**[a]	0.00	**-1.88**[c]	0.07	1.01	-0.01	-0.40	-0.06	-0.96	0.06	**3.96**[a]	0.00	**-1.81**[b]	-0.02	-1.11	0.00	0.01
$DIVER_{i,t}$	-0.01	**-2.94**[a]	0.00	**3.74**[a]	0.00	**-3.36**[a]	0.00	1.02	0.00	**-2.52**[a]	0.00	-0.28	0.00	5.04	0.00	**-7.15**[a]	0.00	-0.65	0.00	0.03
$FX_{i,t}$	-0.01	-0.73	0.00	0.06	0.00	**2.41**[a]	-0.01	-0.56	0.00	-1.00	-0.01	-0.84	0.00	0.65	0.00	1.03	0.00	1.44	0.00	1.14
$PR_{i,t}$	0.00	1.57	0.00	-0.26	0.00	**5.62**[a]	0.00	-0.08	0.00	0.70	0.00	1.15	0.00	-1.74	0.00	**2.52**[a]	0.00	**2.27**[b]	0.00	0.63
$AGC_{i,t}$	0.00	0.82	-0.01	**-5.57**[a]	0.00	**-2.43**[a]	0.00	**-1.84**[b]	0.00	**2.11**[a]	0.01	1.60	-0.01	**-5.65**[a]	0.00	**4.03**[a]	0.01	**5.79**[a]	0.00	0.37
$FCF_{i,t}$	-0.01	**-2.83**[a]	0.00	-0.73	0.00	0.08	-0.01	-1.58	0.00	-1.55	-0.02	**-1.92**[c]	0.00	**5.25**[a]	0.00	0.67	0.00	**-2.18**[b]	-0.01	**-2.10**[b]
$GROW\_MB_{i,t}$	0.00	**1.84**[b]	0.00	-1.36	0.00	**9.83**[a]	0.00	**-2.61**[a]	0.00	1.40	0.00	**2.17**[b]	0.00	-1.02	0.00	**4.83**[a]	0.00	0.86	0.00	**-2.12**[b]
$GROW\_PT_{i,t}$	0.00	-0.99	0.00	-0.03	0.00	1.49	-0.07	**-1.70**[c]	0.00	-1.03	-0.04	-1.73	0.00	0.74	0.00	**-2.03**[a]	-0.01	**-2.62**[a]	0.00	0.18
$SR_{i,t}$	0.00	**3.39**[a]	0.00	**7.08**[a]	0.00	**8.90**[a]	0.00	1.09	0.00	**6.93**[a]	0.00	**2.65**[a]	0.01	**9.72**[a]	0.00	**8.50**[a]	0.00	**6.23**[a]	0.00	**3.74**[a]
$ATR_{i,t}$	0.00	-0.94	0.00	-0.90	0.00	**-3.00**[a]	0.00	**-1.99**[b]	0.00	**-1.97**[b]	0.00	1.03	0.00	**-3.27**[a]	0.00	-0.01	0.00	0.37	0.00	-0.76
$TAX\_CLTL_{i,t}$	0.07	1.38	0.00	**4.04**[a]	0.00	**-2.61**[a]	-0.09	-1.24	0.00	**1.69**[c]	0.23	**3.22**[a]	0.00	**-9.08**[a]	0.00	**-4.05**[a]	-0.02	-1.61	0.01	0.66
$CVF_{i,t}$	-0.63	**-4.08**[a]	-0.09	**-1.71**[c]	-0.05	**-4.68**[a]	-0.07	-0.22	-0.11	**-2.09**[b]	-0.06	-0.19	-0.06	-0.91	-0.09	**-6.85**[a]	-0.49	**-6.60**[a]	-0.17	**-2.00**[b]
$PROF_{i,t}$	0.01	**4.19**[a]	0.00	0.77	0.05	**10.59**[a]	0.13	**2.73**[a]	0.03	**2.76**[a]	0.06	**2.50**[a]	0.07	**4.89**[a]	0.04	**4.55**[a]	0.02	**3.92**[a]	0.06	**2.52**[a]
$BETA_{i,t}$	0.06	**2.28**[b]	-0.01	**-3.75**[a]	0.00	**2.57**[a]	0.01	0.36	-0.01	-0.73	0.04	1.58	0.00	-1.13	0.00	**-2.64**[a]	0.01	1.23	0.02	**1.89**[b]
$SIZE_{i,t}$	0.00	**2.30**[b]	0.00	**2.55**[a]	0.00	**4.62**[a]	0.00	-1.43	0.00	1.29	0.00	-0.96	0.00	**-2.85**[a]	0.00	**5.72**[a]	0.00	0.22	0.00	0.24

Table 7.3 Continued …

$CVA_{i,t}$	0.01	0.61	0.01	**4.31**[a]	0.00	**-2.43**[a]	0.00	0.02	0.00	-0.66	-0.01	-0.39	0.01	1.49	0.00	0.08	0.00	0.37	0.00	-0.40
$AGE_{i,t}$	0.00	-0.69	0.00	0.57	0.00	**-2.41**[a]	0.00	-0.66	0.00	**2.14**[b]	0.00	0.00	0.00	**4.61**[a]	0.00	-0.56	0.00	-0.35	0.00	1.01
$LTD_{i,t}$	-0.04	**-3.68**[a]	-0.01	**-8.50**[a]	0.00	**-10.41**[a]	-0.02	-1.63	-0.01	**-9.31**[a]	-0.04	**-3.05**[a]	-0.01	**-6.87**[a]	0.00	**-7.67**[a]	-0.03	**-7.54**[a]	-0.01	**-5.71**[a]
Adj R-sqr	0.32		0.46		0.47		0.33		0.15		0.53		0.31		0.53		0.33		0.35	
No. of Obs	994		1371		1093		719		1861		1254		1417		814		1469		964	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

7.2.4 Z-score

Using Altman's Z-score (1968)[55] as an alternative proxy for bankruptcy costs shows that the adjusted R^2 is higher than original Model I (Table 4.6 in Chapter 4) across the five countries (DCs: 0.438; 0.289; 0.562; 0.253 and 0.291 and MCs: 0.531; 0.432; 0.548; 0.291 and 0.474 in Australia, U.S., Japan, U.K. and Malaysia). The coefficients' significance level slightly changed. Profitability is highly negatively significant in Australian DCs but in the rest of the countries' DCs it remains insignificant. This measurement of bankruptcy appears to have captured the bankruptcy costs better than the previous measurement of bankruptcy costs. For example, this is indicated by higher significance level of t-test statistics and expected negative coefficients across DCs and MCs (t = -7.521, -3.127, -3.955, -5.271 and -3.225 for DCs in Australia, Japan, U.S., U.K. and Malaysia respectively and t = -4.082, -2.122, -2.664 and -4.114 for Australia, U.S., U.K. and Malaysia respectively). The results of this sensitivity is not presented in a table to minimise repetition of rest of the coefficients results.

7.2.5 Multinational Corporations and Diversification

It has been argued in the literature that firms international effect is non-linear to debt and dividend payout ratios (Allen & Pantzalis, 1996). This non-linearity rises from the fact that as the operation of any firm increases, it does not necessarily confirm a positive impact on a firm's capital structure and dividend policy decision. This occurs because the advantage of diversification has an optimal level of benefit, and once this level is achieved, the additional exposure of international operational risks outweighs the benefit and in return it impacts negatively on a firm's performance, which leads to a concern with on capital structure and dividend payment decisions. This impact non-linearity of

[55] Altman z-score =

$$1.2 * \left(\frac{\frac{Current\ Asset}{Current\ Liabilities}}{Total\ Asset} \right) + 1.4 * \left(\frac{Retained\ Earnings}{Total\ Asset} \right) + 3.3 * \left(\frac{EBIT}{Total\ Asset} \right)$$

$$+ 0.6 * \left(\frac{Market\ Value\ of\ Equity}{Book\ Value\ of\ Total\ Liability} \right) + \left(\frac{Sales}{Total\ Asset} \right)$$

diversification and its effect on debt and dividend payout ratios will be assessed across five sample countries. The reason for testing the non-linearity of foreign expansion and its impact on five countries is to investigate whether the non-linearity of foreign involvement is uniform across five countries as those five sample countries' firms are in different phases of their maturity and also vary in the extent of international involvements. For example, firms in U.S. are far more diversified, while firms in Malaysia are less diversified, smaller in size and relatively more in a growth phase.

The extent of diversification can be explained through depth and breadth of firms geographical involvement. *DIVER* measures firm's breadth of geographical diversity while *FX* measures the depth or concentration of foreign involvement. Table 7.4 presents the optimal level of foreign involvement through breadth $(DIVER)^2$ and depth $(FX)^2$ and their impact on long-term debt ratios. Similarly, Table 7.5 shows the optimal level of foreign involvement through breadth $(DIVER)^2$ and depth $(FX)^2$ and their impact on dividend payout ratios.

The results in Table 7.4 show that the optimal degree of geographical diversification (breadth: $(DIVER)^2$) for U.S. firms presents a significant positive (t=3.12) relationship with long-term debt ratios. This suggests that as U.S. firms become larger through multiple subsidiaries across domicile and foreign countries, it assist to raise more long-term debt. The positive outcome might include favourable subsidiaries' business conditions to raise local debt, less interest expense and low transaction costs. However, the coefficient for *MULT* is negative and significant (t=-3.95) and this magnitude of the coefficient is much larger than the coefficient of $(DIVER)^2$, which indicates that the U.S. MCs benefit significantly less than DCs counterparts in expanding in multiple geographical locations.

Sometimes the depth of international operation is measured by the extent of foreign sales (*FX*). It is also often argued that this proxy is used to capture diversification or extent of any firm's international involvement. It appears that the optimal depth of foreign countries operation $(FX)^2$

shows a significant and negative relationship with long-term debt ratios only in Malaysia. This indicates that as the sales of Malaysian firms increase overseas, they significantly decreases (t=-2.26) after reaching an optimal level of sales.

Table 7.4
The concavity effect of the depth and breadth of international operation and their impact on long-term debt across 5 sampled countries

This table reports the concavity effect of the depth and breadth of international operation and their impact on debt for the sample of 11956 (6038 DCs and 5918 MCs separately) listed companies across five stock exchanges, namely: Australia, U.S., Japan, U.K. and Malaysia Stock Exchange over 10 years to 2004. The adjusted R squared indicates the model's goodness of fit.

$$LTD_{i,t} = \beta_0 + \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 (DIVER_{i,t})^2 + \beta_5 (FX_{i,t})^2 + \beta_6 PR_{i,t} + \beta_{7i,t} BPTCY + \beta_8 BETA_{i,t} + \beta_9 NDTS_{i,t} + \beta_{10} ATR_{i,t} + \beta_{11} SIZE_{i,t} + \beta_{12} CVA_{i,t} + \beta_{13} AGE_{i,t} + \beta_{14} PROF_{i,t} + \beta_{15} DIV_{i,t} + \beta_{16} FCF_{i,t} + \beta_{17} GROW_{i,t} + \varepsilon_{i,t}$$

The dependent variable is measured as long-term debt divided by long-term debt and market value of assets ($LTD_{i,t}$). The variables are measured in the following manner: $MULT_{i,t}$ - *multinationality* takes a value of 1 (unity) if the corporation is multinational corporations otherwise it is 0 (domestic corporations). $DIVER_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. $FX_{i,t}$ – *foreign exchange risk* is measured as a regression coefficient of trade-weighted index and this is obtained by regressing individual firms return against market index and trade-weighted index on a yearly basis using weekly frequency data. *In order to capture the concavity* of international operation and its benefit, a non linear approach is followed by taking the squares of two international operational related factors which are ($(DIVER_{i,t})^2$ and $(FX)_{i,t}{}^2$) measured as square of $DIVER_{i,t}$ and $FX_{i,t}$, which were defined earlier. $PR_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. $BPTCY_{i,t}$ - *bankruptcy risk* is measured as the standard deviation of last five years earrings volatility of firm's earnings before interest and taxes. $BETA_{i,t}$ - *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index. $NDTS_{i,t}$ – *non-debt tax shield* is calculated as depreciation expense to total assets. $ATX_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. $SIZE_{i,t}$ – *size* variable is measured as natural logarithm of total assets. $CVA_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. $AGE_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until the year of analysis. $PROF_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. $DIV_{i,t}$ – *dividend payment* is a ratio of total dividend paid to net income (note losses made any year has been deleted from sample). $AGC_{i,t}$ is defines as is the natural logarithm of total shareholders. $FCF_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. $GROW_{i,t}$ – *growth* is the market value of assets over total assets.

LTD	AU		US		JP		GB		MY	
Variable	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	-0.25	-1.56	0.02	0.13	-0.85	-6.07	-0.63	-4.62	-0.10	-0.82
$MULT_{i,t}$	0.04	1.60	-0.07	**-3.95**[a]	0.03	1.54	0.02	1.17	0.05	**1.94**[a]
$DIVER_{i,t}$	-0.02	-1.07	-0.08	**-3.74**[a]	-0.01	-0.81	-0.02	-1.15	-0.01	-0.44
$FX_{i,t}$	-0.02	-0.19	-0.15	**-1.97**[a]	-0.01	-0.11	0.03	0.40	0.28	**2.73**[a]
$(DIVER_{i,t})^2$	0.00	0.54	0.01	**3.12**[a]	0.00	0.52	0.00	0.48	0.00	-0.48
$(FX_{i,t})^2$	-0.08	-0.71	0.11	1.35	-0.03	-0.21	-0.02	-0.27	-0.28	**-2.26**[a]
$PR_{i,t}$	0.00	1.30	0.00	0.25	0.00	-0.34	0.01	**3.43**[a]	0.00	-0.47
$BPTCY_{i,t}$	0.00	1.13	0.00	-0.02	0.00	1.41	0.00	**-3.72**[a]	0.00	**-1.71**[b]
$BETA_{i,t}$	-0.20	**-2.03**[a]	-0.26	**-7.36**[a]	-0.30	**-6.08**[a]	-0.30	**-3.97**[a]	-0.12	-1.20
$ATR_{i,t}$	-0.28	-1.14	-2.77	**-8.73**[a]	-0.39	**-1.91**[a]	-0.13	-1.62	-0.87	**-2.39**[a]
$NDTS_{i,t}$	0.00	**2.18**[a]	0.00	**9.73**[a]	0.01	**2.04**[a]	0.00	-1.60	0.00	1.26
$SIZE_{i,t}$	0.07	**9.68**[a]	0.06	**12.37**[a]	0.09	**35.27**[a]	0.06	**8.93**[a]	0.08	**14.60**[a]
$CVA_{i,t}$	0.03	0.67	0.38	**11.57**[a]	0.28	**8.16**[a]	0.16	**4.65**[a]	0.18	**5.50**[a]
$AGE_{i,t}$	-0.03	**-2.84**[a]	-0.04	**-6.62**[a]	0.07	**4.96**[a]	0.03	**3.88**[a]	0.00	-0.40
$PROF_{i,t}$	-0.05	-1.74	-0.67	-3.54	-1.77	**-6.22**[a]	-0.07	**-2.38**[a]	-0.39	**-3.65**[a]
$DIV_{i,t}$	-0.09	**-3.24**[a]	0.10	**4.51**[a]	-0.06	**-2.73**[a]	-0.01	-0.37	-0.29	**-10.15**[a]
$FCF_{i,t}$	-0.05	**-2.36**[a]	0.00	**8.88**[a]	0.02	**4.74**[a]	-0.01	-1.49	0.01	1.04
$GROW\_MB_{i,t}$	-0.01	**-3.43**[a]	0.00	**-1.82**[a]	0.00	**2.41**[a]	0.00	**2.94**[a]	0.00	1.25
No. of Obs	2248		2788		1907		2188		2825	
Adj R-sqr	0.34		0.31		0.52		0.23		0.20	

a, b and c represents 1%, 5% and 10% level of statistical significance respectively

When the non-linear relationship of diversification $(DIVER)^2$ and foreign sales $(FX)^2$ have been controlled within the cash dividend payout ratios model (Model 1 in Chapter 5), it suggests that the effect of optimal geographical involvement (e.g. breadth and depth) play a significant role on dividend payout ratios (Table 7.5). For example, the $(DIVER)^2$ coefficient shows a statistical positive significant relationship with dividend payout ratios (t=1.80; 2.88 and t=1.85) for U.S., U.K. and Malaysian firms respectively. This result suggest that the MCs of U.S., U.K. and Malaysia are geographically dispersed and are located in countries where markets are uncorrelated with the domicile country which assists to take advantage of market imperfections in payments of cash dividends. On the contrary, $(FX)^2$ suggest that when firms in U.K. that are more concentrated in foreign sales, experience a significant inverted U shaped relationship with cash dividend payout ratios (t=-1.92). This suggest that foreign sales for U.K. firms have an optimal level and once it reaches that optimal point of foreign sales, it significantly reduces the cash dividend payment capacity.

The above results suggest that it is not necessarily the case that firms in every country experience the non-linear relationship with foreign involvement in determining capital structure and dividend payout decisions. The significant impact of the additional non-linear variable (e.g. $(DIVER)^2$) which is proxied for local and international dispersion have a significant positive relationship for three out of five sample countries and this effect is similar for both DCs and MCs. However, the results also show that the concavity effect of foreign sales (FX^2) on DCs and MCs is similar for Malaysian firms. The negative significant effect of (FX^2) indicates that there is an optimal level of obtaining foreign market share as far as product sales goes and, when this level is achieved, the additional sales and associated costs and risks impose negative effect on firms' profit level, which in return decrease dividend payments in Malaysia.

Table 7.5
The concavity effect of the depth and breadth of international operation and their impact on cash dividend payout across 5 sampled countries

This table reports the concavity effect of the depth and breadth of international operation and their impact on debt for the sample of 11956 (6038 DCs and 5918 MCs separately) listed across five stock exchanges namely: Australia, US, Japan, UK and Malaysia Stock Exchange over 10 years to 2004. The adjusted R squared indicates the model's goodness of fit.

$$
\begin{aligned}
DIVC_{i,t} = {} & \beta_0 + \beta_1 MULT_{i,t} + \beta_2 DIVER_{i,t} + \beta_3 FX_{i,t} + \beta_4 (DIVER_{i,t})^2 + \beta_5 (FX_{i,t})^2 + \beta_6 PR_{i,t} + \beta_7 AGC_{i,t} \\
& + \beta_8 FCF_{i,t} + \beta_9 GROW\_MB_{i,t} + \beta_{10} GROW\_PT_{i,t} + \beta_{11} SR_{i,t} + \beta_{12} ATR_{i,t} + \beta_{13} TAX\_CLTL_{i,t} \\
& + \beta_{14} CFV_{i,t} + \beta_{15} PROF_{i,t} + \beta_{16} BETA_{i,t} + \beta_{17} SIZE_{i,t} + \beta_{18} CVA_{i,t} + \beta_{19} AGE_{i,t} + \beta_{20} LTD_{i,t} + \varepsilon_{i,t}
\end{aligned}
$$

The dependent variables has been employed and it is calculated as $DIVC_{i,t}$ (cash payout ratios) cash dividend paid to net earnings. Multinationality ($MULT_{i,t}$) effect is measured where it takes a value of 1 when a corporation is a multinational otherwise it is 0. $DIVER_{i,t}$ (diversification) is the total number of subsidiaries that any firm has within their domicile country and overseas. $FX_{i,t}$ (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. $(DIVER)^2$ and $(FX)^2$ are the square of *DIVER* and *FX* that mentioned earlier. $PR_{i,t}$ (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. $AGC_{i,t}$ (agency cost) is the natural logarithm of total shareholders. $FCF_{i,t}$ (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortization plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. Two growth measures have been used in this study namely $GROW\_MB_{i,t}$ (market value of equity to book value of asset) which is measured as market value of asset to book value of asset. And secondly, $GROW\_PT_{i,t}$ (past growth) which is measured as the change in total assets over total assets. $SR_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. $ATR_{i,t}$ (average tax ratios) is calculated as total tax paid per annum scaled by net profit. $TAX\_CLTL_{i,t}$ (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. $CFV_{i,t}$ (cash flow variation) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. *PROF* (Profitability) is the average ratio of net income over total sales for the last three years. *BETA* is calculated as the capital market beta. $SIZE_{i,t}$ is the natural logarithm of total asset. $CVA_{i,t}$ (collateral value of assets) is the ratio of fixed assets to total assets. $AGE_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until the year of analysis. $LEVERAGE_{i,t}$ is the ratio of long-term debt to long-term debt plus market value of equity.

Cash	AU		US		JP		GB		MY	
Variable	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**	**Coeff**	**t-Stat**
C	-0.13	-0.50	0.19	1.57	0.14	0.99	0.17	0.96	-0.03	-0.38
MULT	0.04	0.89	0.00	-0.26	0.00	-0.22	-0.01	-0.36	0.01	0.32
$DIVER_{i,t}$	-0.08	**-2.51**[a]	-0.03	**-1.74**[a]	-0.01	-0.42	-0.08	**-2.97**[a]	-0.03	**-1.97**[a]
$FX_{i,t}$	0.15	0.80	0.05	0.87	-0.18	**-2.14**[a]	0.18	**1.95**[a]	-0.05	-0.72
$(DIVER_{i,t})$^2	0.01	1.48	0.00	**1.80**[a]	0.00	0.89	0.02	**2.88**[a]	0.01	**1.85**[a]
$(FX_{i,t})$^2	-0.20	-0.96	-0.03	-0.55	0.26	1.63	-0.18	**-1.92**[a]	0.03	0.31
$PR_{i,t}$	0.00	1.11	0.00	-0.37	0.00	-1.51	0.00	0.24	0.00	1.13
$AGC_{i,t}$	0.03	**1.90**[a]	-0.03	**-2.86**[a]	0.00	0.51	0.01	1.44	0.00	-0.58
$FCF_{i,t}$	-0.01	-1.02	0.00	**4.86**[a]	0.00	-0.55	-0.01	-0.70	-0.01	-1.57
$GROW\_MB_{i,t}$	0.01	1.08	0.00	-1.05	0.00	1.44	0.00	**-4.54**[a]	0.00	0.38
$GROW\_PT_{i,t}$	-0.01	-0.67	0.00	0.51	0.00	**2.95**[a]	0.01	0.65	0.02	1.19
$SR_{i,t}$	0.03	**3.58**[a]	0.09	**10.94**[a]	0.08	**10.60**[a]	0.03	**6.32**[a]	0.03	**10.53**[a]
$ATR_{i,t}$	0.00	0.17	0.00	**11.72**[a]	0.04	**4.04**[a]	0.01	**2.68**[a]	0.00	**4.43**[a]
$TAX\_CLTL_{i,t}$	0.90	**4.00**[a]	0.00	**4.63**[a]	0.00	-0.80	-0.30	**-2.49**[a]	0.05	**2.11**[a]
$CVF_{i,t}$	-4.64	**-5.20**[a]	-3.06	**-4.30**[a]	-4.28	**-6.89**[a]	-3.58	**-5.58**[a]	-1.98	**-5.73**[a]
$PROF_{i,t}$	0.04	**4.57**[a]	0.00	-0.26	0.32	**2.78**[a]	0.15	**3.08**[a]	0.11	**3.03**[a]
$BETA_{i,t}$	0.01	0.07	-0.05	-1.59	0.11	**2.10**[a]	0.08	0.87	0.14	**1.99**[a]
$SIZE_{i,t}$	0.05	**4.47**[a]	0.01	**4.13**[a]	0.01	**4.03**[a]	0.02	**3.17**[a]	0.01	**2.21**[a]
$CVA_{i,t}$	-0.03	-0.52	0.04	**1.69**[a]	0.07	**2.28**[a]	0.04	1.07	0.03	1.63
$AGE_{i,t}$	-0.03	-1.61	0.02	**4.06**[a]	0.05	**3.62**[a]	0.02	**1.81**[a]	0.02	**3.71**[a]
$LTD_{i,t}$	-0.18	**-2.62**[a]	0.00	-0.11	-0.05	**-2.35**[a]	-0.02	-0.53	-0.10	**-7.00**[a]
Adj R-sqr	0.40		0.47		0.25		0.31		0.21	
No. of Obs	2248		2788		1907		2188		2825	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

7.3 ENDOGENEITY TEST BETWEEN CASH DIVIDENDS & LEVERAGE

In this section we test for endogeneity between leverage and dividend payout ratios through Hausmen test statistics. We test this endogeneity behaviour by employing mainly Model I from Chapter 4 and Model I from Chapter 6:

Model I of Chapter 4:

$$Leverage\ (L)_{(i,t)} = \beta_0 + \sum \beta_1 X_{International\_factors(i,t)} + \sum \beta_2 X_{Tradeoff\_factors(i,t)} + \sum \beta_3 X_{Firm\_peckingorder(i,t)} + e_{(i,t)}$$

or

$$\begin{aligned} LTD_{i,t} = {} & \beta_0 + \beta_1 DIVER_{i,t} + \beta_2 FX_{i,t} + \beta_3 PR_{i,t} + \beta_4 BPTCY_{i,t} + \beta_5 BETA_{i,t} + \beta_6 ATR_{i,t} + \beta_7 NDTS_{i,t} \\ & + \beta_8 SIZE_{i,t} + \beta_9 CVA_{i,t} + \beta_{10} AGE_{i,t} + \beta_{11} PROF_{i,t} + \beta_{12} DIVC_{i,t} + \beta_{13} FCF_{i,t} + \beta_{14} GROW_{i,t} + e_{i,t} \end{aligned}$$

Model I of Chapter 6:

$$\begin{aligned} DIVC_{i,t} = {} & \beta_0 + \beta_1 DIVER_{i,t} + \beta_2 FX_{i,t} + \beta_3 PR_{i,t} + \beta_4 AGC_{i,t} + \beta_5 FCF_{i,t} + \beta_6 GROW\_MB_{i,t} \\ & + \beta_7 GROW\_PT_{i,t} + \beta_8 SR_{i,t} + \beta_9 ATR_{i,t} + \beta_{10} TAX\_CLTL_{i,t} + \beta_{11} CFV_{i,t} + \beta_{12} PROF_{i,t} \\ & + \beta_{13} BETA_{i,t} + \beta_{14} SIZE_{i,t} + \beta_{15} CVA_{i,t} + \beta_{16} AGE_{i,t} + \beta_{17} LTD_{i,t} + \varepsilon_{i,t} \end{aligned}$$

In our view of the trade-off and pecking order model, the two endogenous variables are the target dividend payout ratios and target leverage. Both are functions of profitability, investment opportunities (growth), and other variables which are exogenous. The target payout depends on target leverage, and vice versa. We chose to investigate the cash dividend only for the purpose of testing endogeneity because the share repurchases activity across our chosen sample countries are not that strong and frequent except for the U.S. In order to preserve the consistency across countries endogeneity test between MCs and DCs, we only focus on cash dividend type of dividend payment method and disregarded the alternative modes of dividend payment (e.g. share repurchases).

Leverage ratio is included in the estimation model to control for the simultaneity of dividends and capital structure decisions. Following the results obtained by Bradley et al. (1998), firms with high debt ratio would be expected to pay lower dividends. Since the previous studies on capital structure found debt ratios to be related to many of the right hand side variables included in the regression model for dividends, a simultaneous equation is conducted in this section so that the endogeneity of the dividend payout and leverage is justified. Also, Jensen, Solberg and Zorn (1992) linked the interaction between financial policies (dividend payout and leverage) and found that corporate financial decisions are interdependent.

Given one of the determinants of $LTD_{i,t}$ (Model I – Chapter 4) is $DIVC_{i,t}$ and $LTD_{i,t}$ also happens to be one of the explanatory factors of $DIVC_{i,t}$ (Model I – Chapter 6), it creates an endogenous relationship which we believe may have biased the results in Table 6.4 – Panel A. Therefore, to test this biasness we conducted a Hausman test (1978) as mentioned earlier, which accounts for detecting the endogeneity of the two interdependent economic variables (e.g. leverage and dividend payout ratios). Results suggest that endogeneity is highly significant for DCs and MCs across Australia, U.S., Japan, U.K. and Malaysia. This indicates that the model specification in Chapter 4 (explaining leverage ratios with the suggested explanatory variables) and model specification in Chapter 6 (explaining dividend payout ratios with the suggested explanatory variables) is violated and not justified. There may be a number of reasons for this violation, and one of the main reasons we suspect is the existence of an interdependency relationship between leverage and dividend ratios. To account for this violation, a further test is conducted in section 7.4 and presented in Tables 7.6 and 7.7.

7.4 2SLS TEST BETWEEN CASH DIVIDENDS AND LEVERAGE

Given we found significant endogenous relationship between dividend payments and leverage across the sample countries for both DCs and MCs, a two-stage least squares regression (2SLS) is considered to account for the violation of OLS regression's recursivity, especially models where we showed that the disturbance term of the dependent variable (leverage and dividend payout ratios) is correlated with the cause(s) of the independent variables (dividend and leverage ratios). Tables 7.6

and 7.7 present the 2SLS regression results for cash dividends and leverage for both DCs and MCs across five countries and the table reports the second stage results with the newly created variable $DIV\_HAT_{i,t}$ for long-term debt model and $LEVERAGE\_HAT_{i,t}$ for dividend payout ratios model which is adjusted for endogeneity. Results in these two tables show that after adjusting for endogeneity, the initial results in Chapter 4 and Chapter 6 remains mostly unchanged. Therefore, despite the existence of endogeneity we observed in the earlier results (shown in this sensitivity chapter), the reported results remain very similar relative to endogeneity adjusted results. Therefore, we can argue that the endogeneity and core arguments of the dividend payout and capital structure determinants do not impact on the variables of concern.

Table 7.6 2SLS in detection of endogeneity of cash dividends in long-term debt framework for DCs and MCs across 5 sampled countries

This table reports the 2-stage least square (2SLS) test results which has accounted for endogeneity in the capital structure model for the sample of 11956 (6038 DCs and 5918 MCs separately) listed across five stock exchanges, namely: Australia, US, Japan, UK and Malaysia Stock Exchange over 10 years to 2004. The adjusted R squared indicates the model's goodness of fit.

$$LTD_{i,t} = \beta_0 + \beta_1 DIVER_{i,t} + \beta_2 FX_{i,t} + \beta_3 PR_{i,t} + \beta_{4i,t} BETA + \beta_5 BPTCY_{i,t} + \beta_6 NDTS_{i,t} + \beta_7 ATR_{i,t} + \beta_8 SIZE_{i,t} + \beta_9 CVA_{i,t} + \beta_{10} AGE_{i,t} + \beta_{11} PROF_{i,t}$$
$$+ \beta_{12} DIV\_HAT_{i,t} + \beta_{13} AGC_{i,t} + \beta_{14} FCF_{i,t} + \beta_{15} GROW_{i,t} + \varepsilon_{i,t}$$

The dependent variable is measured as long-term debt to long-term debt and market value of assets ($LTD_{i,t}$). The variables are measured in the following manner: The independent variables are measured in the following manner: $DIVER_{i,t}$ – diversification is defined as the natural logarithm of total subsidiaries in home country and overseas countries. $FX_{i,t}$ – *foreign exchange risk* is measured as a ratio of foreign sales to total sales. $PR_{i,t}$ – *political risk* variable is measured as the proportion of foreign sales to total sales times by the country's political risk index which is provided by PRS Global. $BPTCY_{i,t}$ – *bankruptcy risk* is measured as the standard deviation of last five years earnings volatility of firm's earnings before interest and taxes. $BETA_{i,t}$ – *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index – market model. *NDTS* (Non-Debt Tax Shield) is calculated by total annual depreciation expense over total assets. $ATX_{i,t}$ – *average tax* is calculated as a ratio of tax expense to total income. $SIZE_{i,t}$ – *size* variable is measured as natural logarithm of total assets. $CVA_{i,t}$ – *collateral value of assets* is measured as the ratio of total fixed assets to total assets. $AGE_{i,t}$ – *age* is defined as the natural logarithm of the number of years since it has been incorporated until the year of analysis. $PROF_{i,t}$ – *profitability* is defined as the average ratio of net income over total sales. $DIV\_HAT_{i,t}$ – the fitted values from the dividend model where the dividend payout ratios is a ratio of total cash dividend paid to net income (note losses made any year has been deleted from sample). $AGC_{i,t}$ is defines as is the natural logarithm of total shareholders. $FCF_{i,t}$ – *free cash flow* measured after Lehn and Poulsen (1989) is the sum of earnings before interest and taxes, depreciation, amortization minus tax, dividend and interest expense scaled by 10,000. $GROW_{i,t}$ – *growth* is the market value of assets over total assets.

Debt	DCs										MCs									
	AU		US		JP		UK		ML		AU		US		JP		UK		ML	
	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	-0.14	-0.73	0.22	0.99	-0.78	-3.74[a]	-0.32	-1.32	-0.52	-4.76[a]	-1.08	-3.47[a]	-0.15	-0.78	-0.82	-4.70[a]	-0.78	-4.34[a]	-1.05	-4.35[a]
$DIVER_{i,t}$	-0.03	-1.70[c]	0.01	0.87	-0.01	-1.27	0.00	0.07	-0.04	-3.66[a]	-0.04	-3.40[a]	-0.03	-3.78[a]	0.00	0.73	-0.02	-1.33	-0.01	-1.00
$FX_{i,t}$	-0.14	-3.42[a]	-0.09	-2.51[b]	-0.24	-2.58[b]	0.05	0.94	-0.01	-0.40	-0.11	-2.22[b]	-0.05	-1.98[b]	-0.01	-0.41	0.00	-0.16	-0.01	-0.27
$PR_{i,t}$	0.00	0.73	0.00	-1.30	0.00	-1.50	0.00	0.75	0.00	3.23[a]	0.01	2.96[a]	0.00	-0.04	0.00	0.86	0.01	3.79[a]	0.02	5.06[a]
$BPTCY_{i,t}$	0.00	0.47	0.00	1.58	0.00	3.19[a]	0.00	-3.65[a]	0.00	-0.89	0.00	-1.78[c]	-0.01	-5.52[a]	0.00	-0.36	0.00	-1.34	-0.01	-3.22[a]
$BETA_{i,t}$	-0.01	-0.09	-0.29	-4.32[a]	-0.29	-3.60[a]	-0.23	-1.71[b]	0.01	0.09	-0.26	-2.20[b]	-0.15	-3.59[a]	-0.17	-2.78[b]	-0.34	-3.59[a]	0.85	4.18[a]
$ATR_{i,t}$	-0.49	-2.20[b]	-0.80	-2.00[b]	0.39	1.74[c]	-0.52	-2.98[a]	-0.41	-1.27	-0.17	-0.49	-3.03	-10.49[a]	-1.85	-4.48[a]	0.00	0.03	-2.51	-3.38[a]
$NDTS_{i,t}$	0.00	0.47	0.00	-0.02	0.01	2.90[a]	0.01	1.80[b]	0.00	11.11[a]	0.04	1.76[c]	0.00	6.20[a]	0.02	3.50[a]	0.00	-1.94[a]	0.09	8.09[a]
$SIZE_{i,t}$	0.11	7.37[a]	0.04	5.36[a]	0.10	25.47[a]	0.04	4.08[a]	0.11	19.10[a]	0.08	5.19[a]	0.06	8.93[a]	0.09	26.01[a]	0.07	6.59[a]	0.08	6.63[a]
$CVA_{i,t}$	0.06	1.31	0.17	3.56[a]	0.21	5.07[a]	0.21	3.36[a]	0.22	7.11[a]	-0.34	-3.32[a]	0.35	8.26[a]	0.51	8.01[a]	0.11	2.51[b]	0.14	1.66[c]
$AGE_{i,t}$	-0.06	-4.67[a]	-0.01	-1.09	0.10	4.33[a]	0.06	3.90[a]	0.03	4.22[a]	0.07	2.65[b]	-0.06	-8.66[a]	0.04	2.14[b]	0.02	1.48	0.04	1.83
$PROF_{i,t}$	-0.03	-1.18	-0.29	-2.25[b]	-2.86	-8.52[a]	0.06	1.02	0.01	0.19	0.25	2.86[a]	-1.29	-10.90[a]	-1.14	-3.22[a]	-0.10	-1.97[c]	0.14	0.73
$DIV_{i,t}\_HAT$	-0.45	-3.91[a]	0.39	7.07[a]	-0.18	-1.91[b]	-0.39	-2.87[a]	-1.77	-21.79[a]	-0.90	-4.16[a]	0.19	4.31[a]	-0.46	-4.10[a]	0.14	1.18	-2.23	-15.45[a]
$FCF_{i,t}$	-0.04	-2.01[b]	0.00	1.24	0.71	4.83[a]	-0.02	-1.45	0.00	1.14	-0.17	-3.46[a]	0.00	11.44[a]	0.01	6.34[a]	-0.01	-0.97	-0.24	-3.33[a]
$GROW_{i,t}$	-0.02	-2.49[a]	0.00	-2.97[a]	0.00	-0.41	0.00	2.69[a]	0.00	2.34[a]	0.00	-1.70[c]	0	0.54	0.07	1.85[c]	0	0.81	-0.02	-1.76[c]
Adj R-sqr	0.42		0.29		0.54		0.25		0.38		0.65		0.39		0.56		0.25		0.66	
No. of Obs	994		1371		1093		719		1861		1254		1417		814		1469		964	

Table 7.7

2SLS in detection of endogeneity of debt in cash dividend payout framework for DCs and MCs across 5 sampled countries

This table reports the 2-stage least square (2-SLS) test results which has accounted for endogeneity in the dividend model for the sample of 11956 (6038 DCs and 5918 MCs separately) listed across five stock exchanges namely: Australia, US, Japan, UK and m Stock Exchange over 10 years to 2004. The adjusted R squared indicates the model's goodness of fit.

$$DIVC_{i,t} = \beta_0 + \beta_1 DIVER_{i,t} + \beta_2 FX_{i,t} + \beta_3 PR_{i,t} + \beta_4 AGC_{i,t} + \beta_5 FCF_{i,t} + \beta_6 GROW\_MB_{i,t} + \beta_7 GROW\_PT_{i,t} + \beta_8 SR_{i,t} + \beta_9 ATR_{i,t}$$

$$+ \beta_{10} TAX\_CLTL_{i,t} + \beta_{11} CFV_{i,t} + \beta_{12} PROF_{i,t} + \beta_{13} BETA_{i,t} + \beta_{14} SIZE_{i,t} + \beta_{15} CVA_{i,t} + \beta_{16} AGE_{i,t} + \beta_{17} LTD\_HAT_{i,t} + \varepsilon_{i,t}$$

The dependent variables has been employed and it is calculated as $DIVC_{i,t}$ (cash payout ratios) cash dividend paid to net earnings. $DIVER_{i,t}$ (diversification) is the total number of subsidiaries that any firm has within their domicile country and overseas. $FX_{i,t}$ (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. $PR_{i,t}$ (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. $AGC_{i,t}$ (agency cost) is the natural logarithm of total shareholders. $FCF_{i,t}$ (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortization plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. Two growth measures have been used in this study namely $GROW\_MB_{i,t}$ (market value of equity to book value of asset) which is measured as market value of asset to book value of asset. And secondly, $GROW\_PT_{i,t}$ (past growth) which is measured as the change in total assets over total assets. $SR_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. $ATR_{i,t}$ (average tax ratios) is calculated as total tax paid per annum scaled by net profit. $TAX\_CLTL_{i,t}$ (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. $CFV_{i,t}$ (cash flow variation) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. *PROF* (Profitability) is the average ratio of net income over total sales for the last three years. BETA is calculated as the capital market beta. $SIZE_{i,t}$ is the natural logarithm of total asset. $CVA_{i,t}$ (collateral value of assets) is the ratio of fixed assets to total assets. $AGE_{i,t} - age$ is defined as the natural logarithm of the number of years since it has been incorporated until the year of analysis. $LEVERAGE_{i,t}$ is the ratio of long-term debt to long-term debt plus market value of equity. $LEVERAGE\_HAT_{i,t}$ is the fitted value of capital structure model that has been proposed in chapter 4.

Cash Dividend	DCs										MCs									
	AU		US		JP		UK		ML		AU		US		JP		UK		ML	
	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
C	-1.23	**-3.35**[a]	-1.23	**-5.42**[a]	-0.46	-1.64	-0.17	-0.55	-0.12	-2.00	-3.28	**-7.38**[a]	0.19	1.05	-2.02	**-7.16**[a]	2.32	**4.72**[a]	-0.63	**-3.78**[a]
$DIVER_{i,t}$	0.04	**1.83**[a]	0.01	1.15	-0.02	**-1.82**[a]	0.00	-0.33	-0.16	**-21.05**[a]	-0.10	**-6.37**[a]	0.02	**2.88**[a]	-0.02	**-2.72**[a]	0.03	**1.70**[a]	-0.01	-1.58
$FX_{i,t}$	-0.46	**-5.75**[a]	0.38	**6.43**[a]	-0.29	-1.61	0.04	0.54	0.27	**15.62**[a]	-0.02	-0.41	0.03	1.03	-0.08	**-1.73**[a]	0.03	0.90	-0.02	-0.61
$PR_{i,t}$	0.01	**2.98**[a]	0.02	**6.08**[a]	-0.01	**-3.13**[a]	0.00	-0.31	-0.01	**-8.61**[a]	0.03	**5.89**[a]	0.00	-0.80	0.00	0.34	-0.02	**-4.24**[a]	0.01	**3.65**[a]
$AGC_{i,t}$	0.02	1.61	-0.04	**-2.59**[a]	0.01	0.90	-0.02	-1.33	0.00	-1.36	0.02	0.69	-0.03	**-2.08**[a]	0.00	0.17	0.03	**2.12**[a]	-0.05	**-5.39**[a]
$FCF_{i,t}$	-0.18	**-8.17**[a]	-0.02	**-6.82**[a]	0.35	1.67	-0.03	**-2.08**[a]	0.02	**12.71**[a]	-0.89	**-10.76**[a]	0.00	**6.25**[a]	0.07	**5.24**[a]	0.03	**1.68**[a]	-0.16	**-3.87**[a]
$GROW\_MB_{i,t}$	-0.06	**-6.24**[a]	0.00	**7.04**[a]	0.00	**2.31**[a]	0.00	**-6.07**[a]	0.00	-1.26	-0.02	**-5.94**[a]	0.00	**1.66**[a]	0.00	**8.06**[a]	0.00	**3.75**[a]	-0.06	**-7.31**[a]
$GROW\_PT_{i,t}$	-0.01	-1.31	0.02	0.64	0.00	1.30	0.07	**2.52**[a]	0.01	1.01	0.01	0.20	0.00	**1.85**[a]	0.00	1.31	0.00	0.05	0.06	**1.95**[a]
$SR_{i,t}$	0.02	**3.04**[a]	0.04	**3.32**[a]	0.07	**5.96**[a]	0.03	**4.38**[a]	0.01	**4.29**[a]	0.01	1.11	0.09	**9.88**[a]	0.07	**5.60**[a]	0.02	**4.60**[a]	0.01	**2.56**[a]
$ATR_{i,t}$	0.01	**2.48**[a]	0.00	-1.21	0.06	**5.61**[a]	0.02	**2.15**[a]	0.00	**11.66**[a]	0.03	1.01	0.00	**7.66**[a]	0.04	**3.70**[a]	0.01	**4.56**[a]	0.04	**8.39**[a]
$TAX\_CLTL_{i,t}$	0.64	**3.24**[a]	0.00	**3.65**[a]	0.00	-0.73	-0.06	-0.39	0.05	**2.36**[a]	0.94	**3.12**[a]	-0.04	**-3.74**[a]	0.00	1.42	-0.39	**-2.17**[a]	0.96	**2.86**[a]
$CVF_{i,t}$	-1.79	**-1.95**[a]	-1.32	**-2.06**[a]	-5.17	**-4.68**[a]	-1.89	-1.62	-0.25	-0.93	1.45	0.85	-3.37	**-4.61**[a]	-4.10	**-4.27**[a]	-3.95	**-4.60**[a]	-1.05	-1.20
$PROF_{i,t}$	-0.13	**-1.83**[a]	0.39	**3.15**[a]	-2.23	**-2.46**[a]	0.22	**2.40**[a]	-1.13	**-20.23**[a]	-0.02	-0.20	0.48	**4.44**[a]	-3.17	**-8.77**[a]	0.33	**4.82**[a]	-0.47	**-3.01**[a]
$BETA_{i,t}$	-0.57	**-2.78**[a]	1.12	**6.86**[a]	-0.07	-0.51	-0.38	**-2.02**[a]	-0.32	**-5.87**[a]	-1.91	**-7.68**[a]	0.04	0.98	-0.56	**-6.06**[a]	1.18	**5.52**[a]	0.50	**3.03**[a]
$SIZE_{i,t}$	0.37	**9.64**[a]	-0.18	**-6.36**[a]	0.12	**4.03**[a]	0.07	**3.55**[a]	0.26	**27.28**[a]	0.35	**9.38**[a]	-0.01	**-1.89**[a]	0.25	**12.28**[a]	-0.17	**-4.63**[a]	0.07	**7.47**[a]
$CVA_{i,t}$	0.66	**6.17**[a]	-0.56	**-6.81**[a]	0.36	**4.56**[a]	0.39	**3.03**[a]	0.44	**23.65**[a]	-0.22	**-2.84**[a]	-0.04	-1.25	1.01	**10.97**[a]	-0.41	**-4.41**[a]	0.07	1.37

Table 7.7 Continued ...

$AGE_{i,t}$	-0.30	**-7.45** [a]	0.04	**5.41** [a]	0.14	**4.84** [a]	0.13	**5.07** [a]	-0.02	**-5.91** [a]	0.17	**5.23** [a]	0.05	**6.21** [a]	0.08	**3.38** [a]	-0.06	**-3.03** [a]	0.03	**1.80** [a]
$LTD_{i,t}$_HAT	-4.82	**-8.28** [a]	3.07	**7.39** [a]	-1.13	**-3.98** [a]	-1.92	**-4.16** [a]	-2.72	**-29.59** [a]	-5.34	**-11.04** [a]	0.41	**5.44** [a]	-2.76	**-11.90** [a]	3.09	**5.71** [a]	-0.85	**-10.06** [a]
Adj R-sqr	0.70		0.78		0.33		0.42		0.75		0.778		0.41		0.36		0.37		0.61	
No. of Obs	994		1371		1093		719		1861		1254		1417		814		1469		964	

a, b and c are the statistical significance level for 1%, 5% and 10% respectively.

7.5 Robustness of Statistical Assumptions

This section focuses on discussing the robustness of the results obtained with regards to model assumption that we relied on in the earlier chapters. The sensitivity issues including multicollinearity, outliers, heteoscadasticity and autocorrelations are discussed below.

7.5.1 Multicollinearity

Multicollinearity refers to correlation among the independent variables in a multiple regression model (Wooldridge, 2000). The problem of multicollinearity is that the experimental design is such that the data does not contain enough "information" about the individual effects of control variables to permit us to estimate the parameters of the statistical model precisely. The concern regarding specification errors from a multivariate regression is the possibility that high correlation exists between independent variables. A commonly used rule of thumb is that a correlation coefficient between two explanatory variables greater than 0.80 or 0.90 indicates a strong association and a potentially harmful collinear relationship (Griffith, Hill and Judge, 2000). High multicollinearity among independent variables could result in imprecise parameter estimates and hypothesis testing would not be powerful (Kennedy, 1992). The Pearson Product Moment correlation matrix presented in Appendix 4 shows the pair-wise relationship for the independent and dependent variables across the five sample countries' DCs and MCs. It shows that some of the variables are correlated to each other; however, not to a 0.80 or 0.90 level. This results were discussed in data chapter (Chapter 2). Further, a test for the potential of harmful collinearity is conducted using the inverse of the correlation matrix to drive the variance inflation factors (VIF). The VIF is given by:

$$VIF = 1/(1-R^2)$$

where R^2 is the correlation. As a general rule, a VIF value greater than 10 or 20 indicates harmful collinearity (Kennedy, 1992; Greene, 2003). The above VIF values for the crucial financial variables across the five countries are presented in Appendix 2 (A: DCs and B: MCs) and it shows that the reported VIF variables for all the models in the earlier chapters across five countries are all less than 10 or 20, and therefore substantiating that multicollinearity is not thought to be a problem.

7.5.2 Influential observations

Outliers are observations in a data set that are substantially different from the bulk of the data, perhaps because of errors or because some data are unusual observations (Wooldridge, 2000). The rationale for looking for outliers is that they may have a strong influence on the estimates, an influence that may not be desirable. One should not be looking only for outliers of whatever type, but also for observations that have a strong influence on the estimates such outliers, called *influential observations.* If the outlier is an error, then it should be excluded from the analysis. If the outlier is an observation, then having a sufficiently large sample will indicate that the influence of the unusual observation will be insignificant. Often regression assumes normality in the distribution of the residuals. Outliers can cause the residuals to be non-normally distributed. This in turn can lead to erroneous estimates of the coefficients. Therefore, a further residual normality test is conducted (Kennedy, 1992) in addition to winsorising (discussed in Chapter 2) and presented in Appendix 3 for Model I (Panel A for DCs) and Model II (Panel B for MCs).[56]

The Jarque-Berra test result of the residuals (Appendix 3) for Model I (Table 4.6 in Chapter 4) across all countries rejects the null hypothesis of normality in the sample residuals at a 1 percent significance level (p=0.000). This finding casts doubt on the initial result obtained from Model I. As discussed by Brailsford, Faff and Oliver (1997), large absolute values of residuals can cause non-normality, leading to unreliable inferences. Therefore, a two step procedure is

[56] Note that no attempt is made to include the test results for other models in sensitivity analysis (e.g. heteroscedasticity, outlier, autocorrelation) because, since these models use the pooled sample, the result would be nothing but a repetition.

followed to identify influential observations:[57] firstly, to visually assess outliers (Appendix 1). As expected, there are some extreme values lying above the bulk of the sample observations. A trimmed least-squared approach was followed to identify outliers, with data points first removed if they exceeded three standard deviations from the mean and, second, observations removed if their residuals exceeded three standard deviations from the mean. This is sufficient to remove the extreme values of concern without 'data mining' the results. By following this procedure, some outliers are indeed identified and excluded. Then the regressions are run again for Model I (Table 6.4 in Chapter 6). However, the outcome suggests a very minor difference in the magnitude of coefficient estimates (e.g. slight change on the 5th decimal points) and no difference in coefficient signs or even statistical significance of the coefficient estimates. Therefore, more confidence can be given as to the robustness of the initial results.

7.5.3 Heteroscadasticity

Heteroscedasticity refers to the situation where the error terms do not have constant variance. It is thus a violation of one of the classical error assumptions (homoscedasticity).[58] Heteroscadasticity poses potentially severe problems for inferences based on least squares regressions estimates. In our OLS regression analysis, we report White (1980) adjusted t-statistics which accounts for any heteroscadastic problems. Further, for the OLS model it is possible to examine the residual plots and determine visually if the residuals appear to move in a non-homoscedastic manner. Appendix 4 provides the result of testing for homoscedasticity for Model I for Chapter 5 (Table 3).[59] The fitted value against the residuals for Model I across five countries indicates that heteroscedasticity is not an issue (e.g. Appendix 3 for Model I for the existence of homoscedasticity).

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[57] Cook (1979) states that an observation may be judged influential if important features of the analysis are altered substantially when the observation is deleted. He also noted that the influence of an observation is partially manifested through the associated and residual variance.

[58] Keller and Warrack (2003).

[59] Similar results are also observed for other tables; however, the result is not reported to avoid repetitions.

7.5.4 Autocorrelation

The autocorrelation or serial correlation is the correlation between the errors of a variable with itself over successive time intervals (Keller and Warrack, 2003). In a time series data set the existence of autocorrelation is more likely. A detection of autocorrelation is necessary because in real world problems there is uncertainty as to whether the errors in the econometric model are correlated. That is, the set of residuals must be pair-wise independent, so that the residual for one observation is independent of the residuals for every other observation. Otherwise the estimates would be biased and unreliable. As mentioned earlier, problems of autocorrelation are more likely to occur in time-series data as opposed to cross-sectional data. In order to investigate the existence of autocorrelation this study calculated Durbin-Watson statistic for both DCs and MCs (Table 4.6 of Chapter 4: Panel A - DCs and Panel B - MCs). This study will be testing the following:

H_0: $\rho = 0$ (No autocorrelation in the model)

H_1: $\rho > 0$ (Autocorrelation exists in the model)

The decision rules:

If $d < d_{Lc}$, reject H_0: $\rho = 0$;

if $d > d_{Uc}$, do not reject H_0: $\rho = 0$;

if $d_{Lc} < d < d_{Uc}$, the test is inconclusive.

Table 7.8
Test for autocorrelation

	Panel A - DCs					Panel B - MCs				
	JP	UK	US	AU	ML	JP	UK	US	AU	ML
Rho (ρ)	0.056	-0.115	0.002	0.043	-0.001	0.013	0.006	0.070	-0.013	-0.033
Durbin Watson (d)	2.896	3.669	2.981	2.572	3.106	2.975	2.189	2.351	2.125	3.016
K	14	14	14	14	14	14	14	14	14	14
d_{Uc} @ 5%	1.908	1.908	1.908	1.908	1.908	1.908	1.908	1.908	1.908	1.908
d_{Lc} @ 5%	1.632	1.632	1.632	1.632	1.632	1.632	1.632	1.632	1.632	1.632
Decision	Do not Reject H_o	Do not Reject H_o	Do not Reject H_o	Do not Reject H_o	Do not Reject H_o	Do not Reject H_o	Do not Reject H_o	Do not Reject H_o	Do not Reject H_o	Do not Reject H_o

Table 7.8 presents the autocorrelation detection test results. The ρ represents the autocorrelation of Model I for DCs and MCs across each countries, d stands for Durbin-Watson

test statistics for those two models, K is the number of independent variables used in the regression model, and d_{Uc} and d_{Lc} are the upper and lower critical values for the Durbin-Watson statistics respectively. It can be seen from Table 9 that, following the decision rules, there is no existence of autocorrelation in DCs and MCs across countries. This further confirms the robustness of the initial findings.

7.6 CONCLUSION

In this sensitivity chapter we have showed that our reported results in the previous chapters do not suffer from any statistical and definitional problems. The results produced in this chapter confirm the reliability, validity and unbiasness in the crucial financial determining factors in the regression analysis that has been conducted for capital structure and dividend payout ratios in earlier chapters across multinational and domestic corporations for five sample countries. Despite the existence of endogeneity, the initial results and the interpreted theory to support the hypothesis still holds. Robustness check has been considered and further confirms the validity of our reported results.

- 8 -
SUMMARY & CONCLUSION

8.1 INTRODUCTION

This thesis is motivated by the lack of consensus regarding the determinants of capital structure and dividend payouts ratios for DCs and MCs and across countries. This thesis attempts to provide comparative and comprehensive evidence of the determinants of capital structure and dividend payout ratios for DCs and MCs in Australia and a comparison for DCs and MCs in five sampled countries (Australia, U.S., Japan, U.K. and Malaysia) over the time period of 1995 to 2004. This thesis consists of two essays on corporate capital structure and two essays on dividend payout policy. Essay I and II are focused on the determinants of capital structure for DCs and MCs in Australia and comparison of five sampled countries. Essay III and Essay IV focus on the determinants of dividend payout ratios for DCs and MCs in Australia and a comparison of five sampled countries. The following sections provide brief description of the key findings that have been documented through empirical analyses in this thesis. Finally, limitations are discussed and a conclusion is drawn.

8.2 KEY FINDINGS

The results in Chapter 3 (Essay I) documents that multinationality of a firm is important in explaining long-term debt for Australian firms. The determining factors for long-term debt ratios and short-term debt vary for Australian DCs and MCs. The difference in Australian DCs' and MCs' long-term debt ratios is explained by geographical diversification, firm's age, bankruptcy risks and growth. The impact of increasing Australian firms' global association through foreign sales (depth) and number of subsidiaries (breadth) show no significant optimal relationship with debt ratios. In addition to industry and time effect control, other important capital structure factors (e.g. industry median, credit risks, financial risks and economic risks) are also tested and it showed that the inclusion of these variables improves the strength of the proposed model. The chapter concludes with strong evidence that the capital structure is time-variant for both Australian DCs and MCs and this is further confirmed by the significant positive partial speed of adjustment suggesting Australian MCs rebalance their target level of capital structure faster than their DCs counterparts.

Chapter 4 (Essay II) compares capital structure determinants for DCs and MCs in Australia, U.S., Japan, U.K. and Malaysia. The results show that the majority of the determinants vary for short-term and long-term debt both between DCs and MCs and across countries. Debt holding capacity of firms varies significantly between DCs and MCs and across countries. In the U.S., the MCs hold significantly less long-term and short-term debt ratios than their counterpart DCs but the opposite is found for Malaysian MCs' long-term debt ratios and Japanese MCs' short-term debt ratios. After controlling for country effects, the result shows that firms in Australia, Japan U.K. and Malaysia hold significantly less long-term debt relative to U.S. firms. However, no significant difference is observed in short-term debt for firms across sampled countries. Also, firms in countries that have adopted an imputation tax system (Australia and U.K.), hold significantly less short-term and long-term debt as opposed to firms in countries that adopted a classical tax system (U.S., Japan and Malaysia). Further, firms in countries that follow common law practice (Australia, U.S., U.K. and Malaysia) have significantly less short-term debt and significantly higher long-term debt than the firms in civil law environment (Japan). This result is irrespective of whether the firms are DCs or MCs. When industry effects and time effects are considered, the results indicate that the effects are not consistent across DCs and MCs and they vary across countries. The result of testing the speed of adjustment towards the target level of capital structure confirm that Australian and Japanese MCs adjust their long-term debt ratios towards a target level faster than their DCs, while U.K. and Malaysia exhibits the opposite. Likewise, Australian, U.S. and U.K. MCs adjust their short-term debt ratios towards a target level relatively more rapidly than DCs counterparts.

Chapter 5 (Essay III) investigates the determinants of dividend payout ratios for Australian DCs and MCs. Two dividend payout definitions are adopted cash dividends and total dividends. The cash dividend payout ratios consists of cash dividends to net earnings while total dividend payout ratios consists of both cash dividends and share repurchases to net earnings. The result suggests that the sample of MCs in Australia has significantly different dividend payout ratios (both cash and total dividend payout ratios) relative to Australian DCs. Secondly, the results indicate that the determinants of both cash dividend and total dividend payout for Australian DCs include diversification, stock return, tax clientele, cash flow variation, profitability, firm-specific risks, firm size and financial slack. For Australian MCs the factors that explain the cash dividend payout ratios are tax clientele, profitability, collateral value of assets and leverage. Similar factors also explain the total dividend payout ratios for MCs in addition to the financial slack variable. It is also found that the determining factors vary between DCs and MCs. The results also show that diversification, profitability, firm-specific risk, size, collateral value of assets and financial slack are significant variables that explain the difference in cash dividend payout ratios between DCs and MCs while tax clientele, cash flow variability and financial slack explain the difference between Australian DCs' and MCs' total dividend payout ratios. Lastly, the results show that industry influence and time affects have varying degrees of significant impact for DCs and MCs in Australia.

Chapter 6 (Essay IV) examines the determinants of dividend payout ratios across the five sampled countries. The results show that stock return, cash flow variation, profitability and age are significant cash dividend payout determinants for DCs in each sampled country. Tax clientele, cash flow variation and profitability are the significant factors in explaining cash dividend payout ratios for MCs across sampled countries. However, this result varies slightly in explaining total dividend payout ratios for DCs and MCs irrespective of the country. The common determinants that explain the difference in cash dividend payout ratios for DCs and MCs across countries are diversification (Australia and U.S.), agency costs and average tax ratios (U.K. and Malaysia), tax clientele (U.S. and Malaysia) and cash flow variation (Japan and Malaysia). The common determinants explaining the difference of DCs' and MCs' total dividend payout ratios changes but only for U.S. corporations. Determinants that become significant are political risks, stock return, profitability and age. Importantly, country effects shows that firms operating under an imputation tax system (Australia and U.K.) and in a common law environment (Australia, U.S., UK. And Malaysia) pay comparatively higher dividends relative to firms operating under a classical tax system (U.S., Japan and Malaysia) and in a common law environment (Australia, U.S., U.K. and Malaysia). Further, MCs operating under an imputation tax system and in a common law regime pay significantly lower cash and total dividends relative to DCs counterparts. Lastly, the speed of adjustment towards the target level of cash dividend payout ratios suggests that MCs in Australia, U.S. and Malaysia adjust their target cash dividend payout ratios more quickly than DCs, while the opposite holds for MCs in Japan and U.K. Further, these results are robust to various tests of sensitivity for statistical bias or measurement issues. Finally, the results are also insensitive to endogeneity between leverage and dividend decisions.

8.3 LIMITATIONS, POSSIBLE EXTENSIONS AND FUTURE RESEARCH

There has been limited research on comparison of capital structure and dividend policy for MCs and DCs across countries. This thesis is one step towards providing greater insight into this area of research. Extensions to this study would assist in developing a better understanding of the relationship between capital structure and dividend payouts determinants for both DCs and MCs across Japan, U.K., U.S., Australia and Malaysia.

The trade-off theory of capital structure is primarily driven by the corporate tax benefits of debt financing and the costs associated with debt. It is important to recognise MCs utilising transfer pricing to gain tax benefit. Transfer pricing provides opportunity to manipulate earnings and/or cash flows across different corporate segments to reduce taxes. Transfer pricing may also provide opportunity for MCs to lower transaction costs. It is not known what effect these decisions have on the valuation of MCs and the impact on capital structure and dividend policy. Identifying firms that utilise transfer pricing to arbitrage tax opportunity and the impact transfer pricing has on capital structure and dividend policy is an area of future research.

Another factor that may impact on the capital structure decisions of the DCs and MCs is managerial ownership and block holdings.[60] The choice of financing policies as a means of reducing conflicts of interest between managers and shareholders has been examined in several studies. Novaes and Zingales (1995) show that the choice of debt that would be optimal for shareholders is generally different from the choice made by entrenched managers. Berger, Ofek and Yermack (1997) provide evidence that managers who become entrenched may deviate from choosing the optimal leverage due to the agency costs of managerial discretion.[61] These issues are also left for future research, particularly across different countries and across MCs and DCs.

Fama and MacBeth (1973) estimation procedure use the average slopes from year-to-year cross-section regressions. This estimation technique can be employed to study the determinants of leverage and dividends. This requires a long period of data, for example 40-50 years to obtain robust standard errors. Expanding the dataset for DCs and MCs would provide further evidence on the reliability of the results documented in this thesis.

One potential limitation in this thesis is specific to the sample selection of firms. The sample selection was made only from the listed companies. Including unlisted firms would add further reliability of results. A further extension would be to increase the sample size across all countries worldwide. Some recent work has considered the debt ratios of firms in general in the U.S., developing countries and a few East Asian countries. However, there does appear to be a need to conduct a more recent and detailed worldwide survey of DCs' and MCs' capital structure.

The capital structure and dividend payment models tested in thesis can be regard as traditional models. More recent behavioural models could be tested for DCs and MCs.

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[60] See, among others, Kim and Sorenson (1986), Stultz (1988), Smith and Watts (1992), Agrawal and Knoeber (1996) and Lang et al. (1996).

[61] Berger et al. (1997) find that the leverage levels are lower when CEOs are entrenched, i.e. when CEOs do not face intense monitoring from outside shareholders, when their compensation is not tied to performance, or when they already own a large proportion of the outstanding shares.

To conclude, the results documented in this thesis provide further evidence on the complexity of capital structure and dividend policy. The results show considerable variation in the determinants of capital structure and dividend policy over time, across countries and across DCs and MCs. The results of this thesis will be of great value and one step forward in solving the practical problems faced by corporate financial officers of DCs and MCs across Australia, U.S. Japan, U.K. and Malaysia.

BIBLIOGRAPHY

Adedeji, A., 1998, 'Does the pecking Order Hypothesis Explain the Dividend Payout Ratios of Firms in the U.K.?', *Journal of Business and Accounting,* 25, pp. 1127-1155.

Adler, M., 1974, 'The Cost of Capital and the Valuation of Two Firms', *Journal of Finance*, pp. 119-132.

Adler, M. & Dumas, B., 1984, 'Exposure to Currency Risk: Definition and Measurement', *Financial Management*, 13(2), pp. 41-50.

Adler, M. & Dumas, B., 1975, 'Optimal International Acquisitions', *Journal of Finance*, 30(1), pp. 1-19.

Agmon, T. & Lessard, D., 1977, 'Investor Recognition of Corporate International Diversification', *Journal of Finance*, 32, pp. 1049-1055.

Agrawal, A. & Knoeber, C.R., 1996, 'Firm Performance and Mechanisms to Control Agency Problems Between Managers and Shareholders', *Journal Financial and Quantitative Analysis*, 31(3), pp. 377-397.

Agrawal, A., & Narayanan, J., 1994, 'The Dividend Policies of All-Equity Firms: A Direct Test of the Free Cash Flow Theory', *Managerial and Decision Economics*, 5(2), pp. 139-148.

Agrawal, A. & Nagarajan, N.J., 1990, 'Corporate Capital Structure, Agency Costs and Ownership Control: The Case of All-Equity Firms', *Journal of Finance*, 45(4), pp. 1325-1331.

Ahimud, Y., 1994, 'Exchange Rates and Valuation of Equity Shares', Irwin Professional Publishing, New York.

Akerlof, G.A., 1970, 'The Market for "Lemons": Quality and the Market Mechanism', *Quarterly Journal of Economics*, 84, pp. 488-500.

Akhtar, S., 2005, 'The Determinants of Capital Structure for Australian Multinational and Domestic Corporations', *Australian Journal of Management*, 30(2), pp. 1-21.

Aliber, R., 1983, 'Money, Multinationals and Sovereignty', Kindleberger Edn, Cambridge, MIT Press.

Allen, D.E., 1991, 'The Determinants of the Capital Structure of Listed Australian Companies: The Financial Manager's Perspective', *Australian Journal of Management*, 16, pp. 103-128.

Allen, D.E., 1993, 'The Pecking Order Hypothesis: Australian Evidence', *Applied Financial Economics*, 3, pp. 101-112.

Allen, F., & Michaely, R., 2003, 'Payout Policy', in Constantinides, George, Milton Harris and Rene Stulz eds. Handbook of the Economics of Finance (Amsterdam: North-Holland).

Allen, M., & Shaked, I., 1986, 'Multinational Corporations vs. Domestic Corporations: Financial Performance and Characteristics', *Journal of International Business Studies*, pp.89-99.

Allen, L. & Pantzalis, C., 1996, 'Valuation of the Operating Flexibility of Multinational Corporations', *Journal of International Business Studies*, 27, pp. 633-653.

Allen, F., Bernardo, A. & Welch, I., 2000, 'A Theory of Dividends Based on Tax Clientele', *Journal of Finance,* 55(6), 2499-2536.

Alli, K.L., Khan, A.Q. & Ramirez, G.G., 1993, 'Determinants of Corporate Dividend Policy: A Factorial Analysis', *The Financial Review,* 28(4), pp. 523-547.

Altman, E.I., 1968, 'Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy', *Journal of Finance*, 23, pp. 589-609.

Amihud, Y., Baruch, L. & Travlos, N.G., 1990, 'Corporate Control and the Choice of Investment Financing: The Case of Corporate Acquisitions', *Journal of Finance*, 45, pp. 603-616.

Ang, J.S., 1991, 'Agenda for Research in Pacific-Basin Finance', *Pacific Basin Capital Market Research,* 2, pp. 201-210.

Ang, J.S., Chua, J.H. & McConnell, J.J., 1982, 'The Administrative Costs of Corporate Bankruptcy: A Note', *Journal of Finance*, 37, pp. 219-226.

Ang, J.S. & Jung, M., 1993, 'An Alternate Test of Myers' Pecking Order Theory of Capital Structure: The Case of South Korean Firms', *Pacific-Basin Finance Journal,* 1, pp. 31-46.

Antonios, A., Yilmaz, G. & Krishna, P., 2002, 'Determinants of Corporate Capital Structure: Evidence from European Countries', Working Paper, University of Durham, pp. 1-31.

Armstrong, V. & Riddick, L., 1998, 'Legal and Economic Effects on Firm Value Created by Differences in Bankruptcy Law Among Countries', Working Paper, Washington State University, pp. 1-35.

Asquith, P. & Mullins, D.W. Jr., 1983, 'The Impact of Initiating Dividend Payments on Shareholders' Wealth', *Journal of Business*, pp. 77-96.

Auerbach, A.S., 1985, 'Real Determinants of Corporate Leverage', In: B.M. Friedman, Editor, *Corporate Capital Structure in the United States*, National Bureau of Economic Research, pp. 301–322.

Auerbach, A.J., 1982, 'Whether the Corporate Tax? Reform after ACRS', 35(3) *National Tax Journal*, pp. 275-286.

Bae, C.S., & Noh, S., 2001, 'Multinational Corporations versus Domestic Corporations: A Comparative Study of R&D Investment Activities', *Journal of Financial Management*, 11, pp. 89-104.

Bagwell, L. S., 1989, 'Dutch-Auction Repurchase: An Analysis of Shareholder Heterogeneity', *Working Paper, Northwestern University.*

Bailey, W. & Chung, Y.P., 1995, 'Exchange Rate Fluctuations, Political Risk, and Stock Returns: Some Evidence from an Emerging Market', *Journal of Financial and Quantitative Analysis*, 30(4), pp. 541-561.

Bajaj, M. & Vijh, A.M., 1990, 'Dividend Clienteles and Information Content of Dividend Changes', *Journal of Financial Economics,* 26, pp. 193-219.

Baker, H.K, 1988, 'Relationship between Industry Classification and Dividend Policy', *Southern Business Review*, 14, pp. 1-8.

Baker, H.K. & Powell, G.E., 2000, 'Determinants of Corporate Dividend Policy: A Survey of NYSE Firms', *Financial Practice and Education*, 10(1), pp. 29-40.

Baker, H.K., Farrelly, G.E., & Edelman, R.B., 1985, 'A Survey of Management Views on Dividend Policy', *Financial Management*, 14, pp. 78-84.

Baker, S., 1973, 'Risk and the Required Rate of Return on Equity', *Review of Economics and Statistics*, 55, pp. 503-507.

Baker, M. & Wurgler, J., 2005, Investor sentiment and the cross-section of stock returns, *The Journal of Finance*, forthcoming.

Baker, M., & Wurgler, J., 2004, 'A Catering Theory of Dividends', *The Journal of Finance*, 59(3), pp. 1125-1165.

Baker, M. & Wurgler, J., 2002, 'Market Timing and Capital Structure', *Journal of Finance*, 57, pp. 1 - 32.

Balakrishnan, S. & Fox, I., 1993, 'Asset Specificity, Firm Heterogeneity and Capital Structure', *Strategic Management Journal*, 14(1), pp.3-16.

Baltagi, B.H., 2001, 'Econometric Analysis of Panel Data', 2nd ed. Chichester et al.: Wiley & Sons.

Barclay, M.J. & Smith, C.W. Jr., 1995, 'The Maturity Structure of Corporate Debt', *Journal of Finance*, 50(2), pp. 609-631.

Barclay, M.J., Marx, L.M. & Smith, C.W. Jr., 2003, 'The Joint Determination of Leverage and Maturity', *Journal of Corporate Finance*, 9, pp. 149-167.

Barclay, M.J., & Smith, C.W., Jr., 1999, 'The Capital Structure Puzzle: Another Look at the Evidence', *Journal of Applied Corporate Finance*, 12(1), pp. 8-20.

Barclay, M.J. & Smith, C., 1988, 'Corporate Payout Policy: Cash Dividends versus Open-Market Repurchases', *Journal of Financial Economics* 22, pp. 61-82.

Barnea, A., Haugen, R.A. & Senbet, L.W., 1980, 'A Rationale for Debt Maturity Structure and Call Provisions in the Agency Theoretic Framework', *Journal of Finance*, 35(5), pp. 1223-1234.

Barlett, C.A. & Ghoshal, S., 1989, 'Managing Across Borders: The Transnationals Solution', Harvard Business School Press, Cambridge, MA.

Bartlett, C.A. & Ghoshal, S., 1995, 'Transnational Management', 2nd ed., Chicago: Richard D. Irwin, Inc.

Barton, S.L., Hill, N.C. & Sundaram, S., 1989, 'An Empirical Test of Stakeholder Theory Predictions of Capital Structure', *Financial Management*, 18(1), pp. 36-44.

Bartov, E., Bodnar, G.M. & Kaul, A., 1996, Exchange Rate Variability and the Riskiness of U.S. Multinational Firms: Evidence from the Breakdown of Bretton Woods, *Journal of Financial Economics*, 42, pp. 105-132.

Bartov, E. & Bodnar, G.M., 1994, 'Firm Valuation, Earnings Expectations, and the Exchange Rate Expo-Sure Effect', *Journal of Finance*, 49, pp. 1755-1785.

Bar-Yosef, S. & Huffman, L., 1986, 'The Information Content of Dividends: A Signalling Approach', *Journal of Financial and Quantitative Analysis*, 21, pp. 47-58.

Baskin, J., 1989, 'An Empirical Investigation of the Pecking Order Hypothesis', *Financial Management*, 18, pp. 26-35.

Baumol, W.J. & Quandt, R.E., 1965, 'Investment and Discount Rates under Capital Rationing - A Programming Approach', *Economic Journal*, 75, pp. 3317-329.

Baumol, W.J., 1965, *The Stock Market and Economics Efficiency*, Forham University Press, New York.

Baxter, N.D., 1967, 'Leverage, Risk of Ruin and the Cost of Capital', *Journal of Finance*, 22(3), pp. 395-403.

Beaver, W., Kettler, P, & Scholes, M., 1970, 'The Association Between Market Determined and Accounting Determined Risk Measures', *Accounting Review*, 45, pp. 645-682.

Bell, L. & Jenkinson, T., 2002, 'New Evidence of the Impact of Dividend Taxation and on the Identity of the Marginal Investor', *Journal of Finance*, 57, pp. 1321 - 1346.

Berger, P.G., Ofek, E. & Yermack, D.L., 1997, 'Managerial Entrenchment and Capital Structure Decisions', *Journal of Finance*, 52(4), pp. 1411-1438.

Berger, P.G., & Ofek, E., 1995, 'Diversification's Effect on Firm Value', *Journal of Financial Economics*, 37, pp. 39-65.

Berle, A.A. and Means, G.C., 1932, "The Modern Corporation and Private Property", New York: The Mcmillan Company.

Bernanke, B. & Gertler, M., 1989, 'Agency Costs, Net Worth, and Business Fluctuations', *American Economic Review*, 79(1), pp. 14-31.

Bernheim, B. Douglas. "Does the Estate Tax Raise Revenue?" In *Tax Policy and he Economy*, vol. 1, edited by Lawrence H. Summers. Cambridge, Mass.: MIT *P*ress (for NBER), 1987.

Bevan, A.A. & Danbolt, J., 2002, 'Capital Structure and its Determinants in the U.K. - A Decompositional Analysis', *Applied Financial Economics*, 12(3), pp. 159-170.

Bhaduri, N.S., 2002, 'Determinants of Corporate Borrowing: Some Evidence from the Indian Corporate Structure', *Journal of Economics and Finance*, 26(2), pp.1-10.

Bhattacharya, S., 1979, 'Imperfect Information, Dividend Policy, and the 'Bird in the Hand's Fallacy', *Bell Journal of Economics,* 10, pp. 259-270.

Bishop, S., Faff, R., Oliver, B. & Twite, G., 2004, Corporate Finance, 5th Edn, Pearson Education. Australia.

Black, F., 1976, 'The Dividend Puzzle', *Journal of Portfolio Management,* 2, pp. 5-8.

Black, F., & Scholes, M., 1974, 'The Effects of Dividend Yield and Dividend Policy on Common Stock Prices and Returns' *Journal of Financial Economics,* 1(1), pp.1-22.

Bodnar, G.M. & Gentry, W.M., 1993, 'Exchange Rate Exposure and Industry Characteristics: Evidence from Canada, Japan and the U.S.', *Journal of International Money and Finance*, 12, pp. 29–45.

Boquist, J.A., & Moore, W.T., 1984, 'Inter-industry Leverage Differences and the DeAngelo-Masulis Tax Shield Hypothesis', *Financial Management*, 13(1), pp. 5-9.

Booth, L., Varouj, A., Demirguc-Kunt, A. & Maksimovic, V., 2000, 'Capital Structures in Developing Countries', *Journal of Finance,* 56(1), pp. 87-130.

Booth, J.R., & Smith, R.L. - II, 1986, 'Capital Raising, Underwriting and the Certification Hypothesis', *Journal of Financial Economics*, 15(1/2), pp. 261-281.

Booth, L., Aivazian, V., Demirguc-Kunt, A. & Maksimovic, V., 2001, 'Capital Structures in Developing Countries', *Journal of Finance*, 56(1), pp. 87-130.

Borio, C.E.V., 1990, 'Leverage and Financing of Non-Financial Companies: An International Perspective', *BIS Economic Papers*, No. 27, Basle: Bank of International Settlements, Switzerland.

Bowen, R.M., Daly, L.A. & Huber, C.C., 1982, 'Evidence on the Existence and Determinants of Inter-Industry Differences in Leverage', *Journal of Financial Management*, 11, pp. 10-20.

Bowman, R.G., 1980, 'The Importance of a Market-Value Measurement of Debt in Assessing Leverage', *Journal of Accounting Research*, 18(1), pp. 242-254.

Bradley, M., Jarrell, G. & Kim, E.H., 1984, 'On the Existence of an Optimal Capital Structure: Theory and Evidence', *Journal of Finance*, 39, pp. 857-878.

Brailsford, T., Faff, R. & Oliver, B., 1997, *Research Design in the Estimation of Beta, McGraw-Hill Series in Advanced Finance*, 1, McGraw-Hill, Sydney.

Brander, J.A. & Tracy, R.L., 1986, 'Oligopoly and Financial Structure: The Limited Liability Effect', *American Economic Review*, 76(5), pp. 956-970.

Braun, M. & Larrain, B., 2005, 'Finance and the Business Cycle: International, Industry Evidence', *Journal of Finance*, 60, pp. 1097-1128.

Brav, A., Graham, J.R., Harvey, C.R. & Michaely, R., 2005, 'Payout Policy in the 21st Century', *Journal of Financial Economics*, pp. 225-257.

Brennan J.M., 1970, 'Taxes Market valuation and Corporate Financial Policy', National Tax Journal, 23, pp. 417-427.

Brennan J. M. and Thakor, A.V. (1990), 'Shareholder Preferences and Dividend Policy', The *Journal of Finance*, 45(4), pp. 993-1018.

Brennan, M. & Kraus, A., 1987, 'Efficient Financing under Asymmetric Information', *Journal of Finance*, 42, pp. 1225-1243.

Broaden, C.B. & Samii, M.V., 2001, 'Measuring the Impact of Globalisation: An Analysis of the Risk and Return of Multinational Firms', Working Paper, Southern New Hampshire University, Manchester.

Burgman, T.A., 1996, 'An Empirical Examination of Multinational Corporate Capital Structure', *Journal of International Business Studies*, 27(3), pp. 553-557.

Butler, K.C., 1999, Multinational Finance, South Western College Publishing, U.S.

Carleton, W.T., & Silberman, I. H., 1977, 'Joint Determination of rate of Return and Capital Structure: An Econometric Analysis', *Journal of Finance*, 32, pp. 811-821.

Cassar, G. & Holmes, S. 2003, 'Capital structure and Financing of SMEs: Australian Evidence', *Accounting and Finance*, 43, pp. 123-47.

Castanias, R., 1983, 'Bankruptcy Risk and Optimal Capital Structure', *The Journal of Finance*, 38, pp. 1617-1635.

Chan, K.C., Chen, N.F. & Hsieh, D., 1985, 'An Explanatory Investigation of the Firm Size Effect', *Journal of Financial Economics*, 14, pp. 451-471.

Chang, C., 1992, 'Capital Structure as an Optimal Contract between Employees and Investors', *Journal of Finance*, 47(3), pp. 1141-1158.

Chang, R.P. & Rhee, S. G., 1990, 'The Impact of Personal Taxes on Corporate Dividend Policy and Capital Structure Decisions', *Financial Management*, 19(2), pp. 21-31.

Chaplinsky, S., 1984, 'The Economic Determinants of Leverage: Theory and Evidence', Working Paper, University of Chicago, pp. 1-23.

Chaplinsky, S, & Seyhun, H. N., 1990, 'Dividends and Taxes: Evidence on Tax-Reduction Strategies', *Journal of Business*, 63(2), pp. 239-260.

Chen, C.J.P., Cheng, A., He, N., & Kim, J., 1997, 'An Investigation of the Relationship Between International Activities and Capital Structure', *Journal of International Business Studies*, 23(3), pp. 563-577.

Chiarella, C., Pham, T.M., Sim, A.B. & Tan, M.M.L., 1992, 'Determinants of Corporate Capital Structure: Australian Evidence', *Pacific Basin Capital Markets Research*, Elsevier, Amsterdam.

Chittenden, F., Hall, G. & Hutchinson, P., 1996, 'Small Firm Growth, Access to Capital Markets and Financial Structure: Review of Issues and an Empirical Investigation', *Small Business Economics*, 8(1), pp. 59-67.

Chkir, I.E. & Cosset, J.C., 2001, 'Diversification Strategy and Capital Structure of Multinational Corporations,' *Journal of Multinational Financial Management*, 11, pp. 17-37.

Choe, H., Masulis, R.W., & Nanda, V., 1993, 'Common Stock Offerings across the Business Cycle', *Journal of Empirical Finance*, 1, pp.3-31.

Chowdhry, B., & Nanda, V., 1994, 'Repurchase Premia as a Reason for Dividends: A Dynamic Model of Corporate Payout Policies', *Review of Financial Studies*, 7, pp. 321-350.

Chowdhry, B., & Coval, J.D., 1998, 'Internal Financing of Multinational Subsidiaries: Debt vs. Equity', Journal of Corporate Finance, 4, pp. 87-106.

Choi, J.J. & Prasad, A., 1995, 'Exchange Risk Sensitivity and its Determinants: A Firm and Industry Analysis of U.S. Multinationals', *Financial Management*, 24, pp.77-88.

Chung, K.H., 1993, 'Asset Characteristics and Corporate Debt Policy: An Empirical Test', *Journal of Business Finance and Accounting*, 20(1), pp. 83-97.

Colombo, E., 2001, 'Determinants of Corporate Capital Structure: Evidence from Hungarian Firms', *Journal of Applied Economics*, 33, pp. 1689-1701.

Collins, J.M. & Sekely, W.S., 1983, 'The Relationship of Headquarters Country and Industry Classification to Financial Structure', *Financial Management,* pp. 45-51.

Comment, R. & Jarrell, G.A., 1991, 'The Relative Signalling Power of Dutch-Auction and Fixed-Priced Self-Tender Offers and Open-Market Share Repurchases', *Journal of Finance,* 46, pp. 1243-1271.

Cooke, T.E., 1991, 'An Assessment of Voluntary Disclosure in the Annual Report of Japanese Corporations', *The International Journal of Accounting*, 26(3), pp. 174-189.

Crutchley, C.E. & Hansen, R.S., 2001, 'A Test of the Agency Theory of Managerial Ownership, Corporate Leverage and Corporate Dividends', *Financial Managemen*t, 18, pp. 33- 46.

Dann, L., 1981, 'Agency Stock Repurchases: An Analysis of Return to Bondholders and Stockholders', *Journal of Financial Economics,* 9, pp. 113-138.

Daniels, J.D. & Bracker, J., 1989, 'Profit Performance: Do foreign Operations Make a Difference' *Management International Review*, 29, pp. 47-56.

Denis, D. & Osobov, I., 2005, 'Disappearing Dividends, Catering Incentives and Agency costs: International Evidence', SSRN Working paper.

DeAngelo, H. & Masulis, R.W., 1980, 'Leverage and Dividend Irrelevancy under Corporate and Personal Taxation,' *Journal of Finance*, 35(2), pp. 453-464.

De Angelo, H., 1991, 'Payout Policy and Tax Deferral', *The Journal of Finance*, 66(1), pp. 357-368.

DeAngelo, H., & DeAngelo, L., 2006, 'The Irrelevance of the MM Dividend Irrelevance Theorem', *Forthcoming Journal of Financial Economics*.

DeAngelo, H., DeAngelo L. & Skinner, J.D., 2004, 'Are Dividends Disappearing? Dividends Concentration and the Consolidation of Earnings', *Journal of Financial Economics*, 72(3), pp.425-456.

DeAngelo, H. & DeAngelo, L., 1990, 'Dividend Policy and Financial Distress: An Empirical Investigation of Troubled NYSE firms', *Journal of Finance, 45,* pp.1415-1431.

Dempsey, S. & Laber, G., 1992, 'Effects of Agency and Transaction Costs on Dividend Payout Ratios: Further Evidence of the Agency-Transaction Cost Hypothesis', *The Journal of Financial Research,* 15, pp. 317-321.

Dempsey, S.J., Laber, G. & Rozeff, M.S., 1993, 'Dividend Policies in Practice: Is There an Industry Effect?', *Quarterly Journal of Business and Economics*, 32, pp. 3-13.

Denis, D.D., 1990, 'Defensive Changes in Corporate Payout Policy: Share Repurchases and Special Dividends', *Journal of Finance,* 45, pp. 1433-1456.

Denis, D.J., Denis, D.K., & Sarin, A., 1994, 'The Information Content of Dividend Changes: Cash Flow Signalling, Overinvestment, and Dividend Clienteles', *Journal of Finance and Quantitative Analysis,* 29, pp. 567-587.

Demirguc-Kunt, A. & Maksimovic, V., 1999, 'Institutions, Financial Markets, and Firm Debt Maturity', *Journal of Financial Economics*, 54(3), pp. 295-336.

Demirgu¨c¸-Kunt, A., Laeven, L. & Levine, R., 2004, 'Regulations, Market Structure, Institutions, and the Cost of Financial Intermediation' *Journal of Money, Credit, and Banking,* 36, pp. 593–622.

Desai, M., Foley, C., and Hines Jr., J., 2004a, 'A Multinational Perspective on Capital Structure Choice and Internal Markets', *Journal of Finance,* 59, pp. 2451-2488.

Desai, M., Foley, C., and Hines Jr., J., 2005a, 'Dividend Policy Inside the Multinational Firm', *Financial Management,* forthcoming.

Dharan, B.G., 1992, 'Auditing as a Signal in Small Business Lending', *Journal of Small Business Finance*, 2(1), pp. 1-11.

Dittmar, A., Smith, J.M. & Servaes, H., 2003, 'International Corporate Governance and Corporate Cash Holdings', *Journal of Financial and Quantitative Analysis*, 38, pp. 111-134.

Dittmar, A., & Dittmar, R.F., 2004, 'Stock Repurchase Waves: An Explanation of the Trends in Corporate Payout Policy', working paper, University of Michigan.

Diamond, D.W., 1991a, 'Monitoring and Reputation: The Choice between Bank Loans and Directly Placed Debt', *Journal of Political Economy*, 99, pp. 689-721.

Diamond, D.W., 1991b, 'Debt Maturity Structure and Liquidity Risk', *Quarterly Journal of Economics*, 106, pp. 709-737.

Di Iorio, A. & Faff, R., 2000, 'An Analysis of Asymmetry in Foreign Currency Exposure of the Australian Equities Market', *Journal of Multinational Financial Management*, 10(2), pp. 133-159.

Donaldson, G., 1961, 'Corporate Debt Capacity: A Study of Corporate Debt Policy and the Determinants of Corporate Debt Capacity', Division of Research, Harvard School of Business Administration, Boston, Mass., USA.

Doukas, J.A. & Pantzalis, C., 2003, 'Geographic Diversification and Agency Costs of Debt of Multinational Firms', *Journal of Corporate Finance*, 9, pp. 59-92.

Doukas, J.A., & Pantzalis, C., 1997, 'Multinational Firms' Agency Cost of Debt', Working Paper, Old Dominion University and Western Michigan University.

Downs, T.W., 1993, 'Corporate Leverage and Non-Debt-Tax Shields: Evidence on Crowding Out', *Financial Review*, 28, pp. 549-583.

Durnev. A., & E.H. Kim, 2005, 'To Steal or Not to Steal: Firm Attributes, Legal Environment, and Valuation', *Journal of Finance*, 60(3), pp. 1461-93.

Duru, A. & Reeb, D.M., 2002, 'International Diversification and Analysis - Forecast Accuracy and Bias', *Accounting Review*, 77(2), pp. 415-433.

Dyl, E.A. & Weigand, R.A., 1998, 'The Information Content of Dividend Initiations: Additional Evidence', *Financial Management*, 27, pp. 27-35.

Easterbrook, F.H., 1984, 'The Agency –Cost Explanations of Dividends', *American Economic Review*, 74, pp. 650-59.

Eckbo, B.E., 1986, 'Valuation Effects of Corporate Debt Offerings', *Journal of Financial Economics*, 15(1/2), pp. 119-152.

Eells, R., 1972, The Emerging System of World Economic Power, Free Press, New York.

Erb, C., Harvey, C.R. & Viskanta, T., 1996, 'Expected Returns and Volatility in 135 Countries', *Journal of Portfolio Management*, pp. 46-58.

Eiteman, D.K., Stonehill, A.I. & Moffett, H.M., 1998, '*Multinational Business Finance*', 8th edn, Addison-Wesley, USA.

Elton E.J. & Gruber, M.J., 1970, 'Marginal Stockholder Tax Rates and the Clientele Effect: A reply', *Review of the Economics and Statistics*, 52, pp. 68-74.

Errunza, V.R. & Senbet, L.W., 1984, 'International Corporate Diversification, Market Valuation, and Size-Adjusted Evidence,' *Journal of Finance*, 39(3), pp. 727-743.

Errunza, V.R., Hogan, K. & Hung, M.W., 1999, 'Can the Gains From International Diversification be Achieved Without Trading Abroad?', *Journal of Finance*, 54(6), pp. 2075-2107.

Fama, E.F., 1972, 'Components of Investment Performance', *Journal of Finance*, 27(3), pp. 551-567.

Fama, E.F., 1980, 'Agency Problems and Theory of the Firm', *Journal of Political Economy*, 88(2), pp. 288-307.

Fama, E.F. & French, K.R., 1998, 'Taxes, Financing Decisions, and Firm Value, *Journal of Finance*, 53, pp. 819-843.

Fama, E. F. & French K. R., 2001, 'Disappearing Dividends: Changing Firm Characteristics or Lower Propensity Pay?', *Journal of Financial Economics*, 60(1), pp. 3-43.

Fama, E.F. & French K.R., 2002, 'Testing trade-off and Pecking order Predictions about Dividends and Debt', Review of Financial Studies', *Review of Financial Studies*, 15, pp. 1-33.

Fama, E.F. & French, K.R., 2004, 'The Capital Asset Pricing Model: Theory and Evidence', *Journal of Economics Perspectives*, 18, pp.25-46.

Fama, E.F. MacBeth, J., 1973, 'Risk, Return, and Equilibrium: Empirical Tests', *Journal of Political Economy* 81, pp. 607-636.

Fan, J.P.H., Titman, S. & Twite, G., 2003, 'An International Comparison of Capital Structure and Debt Maturity Choices', Working Paper, GSM.

Fatemi, A.M., 1984, 'Shareholder Benefits from International Diversification', *Journal of Finance*, 39, pp. 1325-1344.

Fatemi, A.M., 1988, 'The Effect of International Diversification', *Journal of Business Research*, 16, pp. 17-30.

Fazzari, S., Hubbard, R. & Petersen, B., 1988, 'Financing Constraints Corporate Investments', *Brookings Papers on Economic Activity*, 1, pp.141-206.

Ferri, M.G. & Jones, W.H., 1979, 'Determinant of Financial Structure: A New Methodological Approach', *Journal of Finance*, 34, pp. 631-644.

Feldstein, M., 1970, 'The Rising Price of Physicians" Services', Review of Economics and Statistics',52, pp. 121–133.

Filbeck, G. & Gorman, R., 2000, 'If Built to Last, are They Built for Value?', *Journal of Investing*, 9(3), pp. 43-54.

Fischer, E.O., Heinkel, R. & Zechner, J., 1989, 'Dynamic Capital Structure Choice: Theory and Tests', *Journal of Finance*, 44, pp.19-40.

Foerster, S., Prihar, A., & Schmitz, J., 1996, 'Back to the Future – again', *Canadian Investment Review*', 9(2), pp. 13-17.

Flannery, M.J., 1986, 'Asymmetric Information and Risky Debt Maturity Choice', *Journal of Finance*, 41, pp. 19-37.

Flannery, M.J. & Rangan, K.P., 2006, 'Partial Adjustment towards target Capital Structures', *Journal of Financial Economics*, Forthcoming.

Foley, J. Hartzell, S. Titman and G. Twite, 2007, 'Why do Firms Hold so Much Cash? A Tax-based Explanation', *Journal of Financial Economics*, forthcoming.

Foster, R.A., 1996, Australian Economic Statistics 1949-50 to 1994-95, Reserve Bank of Australia, Sydney.

Frank, M., & Goyal, K.V., 2003, 'Testing the pecking order theory of capital structure', *Journal of Financial Economics*, 67, pp. 217–248.

Frank, M., & Goyal, K.V., 2004, 'The Effect of Market Conditions on Capital Structure Adjustment', *Finance Research Letters,* 1, pp. 47-55.

Frank, M., & Goyal, K.V., 2005, 'Capital Structure Decisions: Which Factors are Reliably Important?, Working Paper, University of Minnesota and HKUST.

Friend, I. & Lang, L.H., 1988, 'An Empirical Test of the Impact of Managerial Self-Interest on Corporate Capital Structure', *Journal of Financ*e, 43, pp. 271- 281.

Fukuda, A. & Hirota, S., 1996, 'Main Bank Relationships and Capital Structure in Japan', *Journal of the Japanese and International Economies,* 10(3), pp. 250-261.

Galai, D. & Masulis, R., 1976, 'The Option Pricing Model and the Risk Factor of Stock', *Journal of Financial Economics*, 3, pp. 631- 644.

Gale, B., 1972, 'Market Share and Rate of Return', *Review of Economics and Statistics*, 54, pp. 412-423.

Gao, G., 2000, 'Exchange Rate Movements and the Profitability of U.S. Multinationals', *Journal of International Money and Finance*, pp. 117-134.

Gardner, J.C. & Trzcinka, C.A., 1992, 'All-Equity Firms and the Balancing Theory of Capital Structure', *Journal of Financial Researc*h, 15, pp. 77-90.

Gaver J.J. and Gaver, K. M., 1993, 'Additional Evidence on the Association between the Investment Opportunity Set and Corporate Financing, Dividend and Compensation Policies', *Journal of Accounting and Economics,* 16, pp. 125-60.

Gatward, P. & Sharpe, I.G., 1996, 'Capital Structure Dynamics with Interrelated Adjustment: Australian Evidence', *Australian Journal of Management*, 21(2), pp. 89-112.

Gaver, J.J. & Gaver, K.M., 1993, 'Additional Evidence on the Association Between the Investment Opportunity Set and Corporate Financing, Dividends, and Compensation Policies', *Journal of Accounting and Economics*, 16, pp. 125-160.

Geringer, M.J., Beamish, P.W. & Da Costa, R.C., 1989, 'Diversification Strategy and Internationalization: Implication for MNE Performance', *Strategic Management Journal*, 10, pp. 109-119.

Gertler, M., & Gilchrist, S., 1993, 'The Role of Credit Market Imperfections in the Monetary Transmission Mechanism: Arguments and Evidence', *Scandinavian Journal of Economics*, 95, pp. 43-63.

Gertler, M., & Gilchrist, S., 1994, 'Monetary Policy, Business Cycles, and the Behavior of Small Manufacturing Firms' *Quarterly Journal of Economics*, 109, pp. 309-340.

Geyikdagi, Y.M., 1981, 'The Cost of Equity Capital and Risk of 28 U.S. Multinational Corporations vs. 38 U.S. Domestic Corporations: 1965-1978', *Management International Review*, 21, pp. 89-94.

Giddy, I.H. & Dufey, G., 1975, 'The Random Behavior of Flexible Exchange Rates: Implications for Forecasting', *Journal of International Business Studies*, 6, pp. 1–32.

Gilson, S.C., 1989, 'Management Turnover and Financial Distress', *Journal of Financial Economics*, 24, pp. 241-262.

Givoly, D., Hayn, C., Ofer, A.R. & Sarig, O., 1992, 'Taxes and Capital Structure: Evidence from Firms' Response in the Tax Reform Act of 1986', *Review of Financial Studies*, 5, pp. 331-355.

Ghosh, S., 1997, 'United States Trade Balance Announcements: The Nature of its Data Revisions', *Oxford Bulletin of Economics and Statistics*, 59(3), pp. 371-383.

Glen, J. D., Karmokolias,Y., Miller, R.R., & Shah, S., 1995, 'Dividend Policy and Behavior in Emerging Markets: To Pay or Not to Pay', *International Financial Corporation, Discussion Paper*, 26, pp. 322-354.

Goyal, V.K., Lehn, K., & Racic, S., 2002, 'Growth Opportunities and Corporate Debt Policy: the Case of the U.S. Defense Industry', *Journal of Financial Economics*, 64, pp. 35-59.

Gomes, L., & Ramaswamy, K., 1999, 'An Empirical Examination of the Form of the Relationship between Multinationality and Performance', *Journal of Internationa Business Studies*, 30, pp.173-188.

Graham, B., & Dodd, D.L. 1951, Security Analysis: Principles and Techniques, 3rd Edn., Prentice Hall International, U.S.

Graham, J.R., 1996a, 'Proxies for the Corporate Marginal Tax Rate', *Journal of Financial Economics*, 42, pp. 187-221.

Graham, J.R., Lemmon M.L. & Schallheim J.S., 1998, 'Debt, Leases, Taxes, and the Endogeneity of Corporate Tax Status', *Journal of Finance*, 53(1), pp. 131-162.

Graham, J.R., 2000, 'How Big are the Tax Benefits of Debt?', *The Journal of Finance*, 55(5), pp. 1901-1939.

Grant, R.M., 1987, 'Multinationaliity and Performance among British Manufacturing Companies', *Journal of International Business Studies*, 22, pp. 249-263.

Greene, W.H., 2003, '*Econometric Analysis,* 5th Edn, Prentice Hall International, U.S.

Greenwald, B. & Stiglitz, J., 1993, 'New and Old Keynesians', *Journal of Economic Perspectives*, 7(1), pp. 23-44.

Griffith, W.E., Hill, C.R., & Judge, G.G., 2000, 'Learning Practicing Econometrics', 7th Edn, John Wiley & Sons, Inc, Canada.

Grinstein, Y., & Michaely, R., 2005, 'International Holdings and Payout Policy', *The Journal of Finance*, 60(3), pp.1389-1426.

Grossman, S.J. & Hart, O.D., 1982, 'Corporate Financial Structure and Managerial Incentives', in J. McCall (ed.): *The Economics of Information and Uncertainty*, Chicago, University of Chicago Press, USA.

Grullon G. & Michaely, R., 2002, 'Dividends, Share Repurchases, and the Substitution Hypothesis', *Journal of Finance,* 57 (4), pp. 1649-1684.

Grullon G., Michaely, R., & Swaminathan B., 2002, 'Are Dividend Changes a Sign of Firm Maturity?' *The Journal of Business*, 75, pp. 387-424.

Guay, W.R. & Harford, J., 2000, 'The Cash-flow Permanence and Information Content of Dividend Increases versus Repurchases', *Journal of Financial Economics,* 57(3), pp. 385-415.

Gupta, A. & Rosenthal, L., 1991, 'Ownership Structure, Leverage and Firm Value: The Case of Leveraged Recapitalizations', *Financial Management,* 20, pp. 69-83.

Hall, M., & Weiess, L., 1967, 'Firm Size and Profitability', *Review of Economics and Statistics*, 19, pp. 319-331.

Hall, G., Hutchinson, P. & Michaelas, N., 2000, 'Industry Effects on the Determinants of Unquoted SMEs' Capital Structure', *International Journal of the Economics of Business*, 7(3), pp. 297-312.

Hamada, R.S., 1972, 'The Effect of the Firm's Capital Structure on the Systematic Risk of Common Stocks', *Journal of Finance*, 27(2), pp. 435-452.

Handjinicolaou, G., & Kalay, A., 1984, 'Wealth Redistributions or Changes in Firm Value: An Analysis of Returns to Bondholders and Stockholders around Dividend Announcements', *Journal of Financial Economics,* 13, pp. 35-63.

Hanka, G., 1998, 'Debt and the Terms of Employment', *Journal of Financial Economics*, 48, pp. 245-282.

Harris, M. & Raviv, A., 1990, 'Capital Structure and the Informational Role of Debt,' *Journal of Finance*, 45, pp. 321-349.

Harris, M. & Raviv, A., 1991, 'The Theory of Capital Structure', *Journal of Finance*, 49, pp. 297-355.

Hansen, R.S., Kumar, R., & Shome, D.S., 1994, 'Dividend Policy and Corporate Monitoring: Evidence from the Regulated Electric Utility Industry', *Financial Management*, 23, pp. 16-22.

Hasbrouck, J., 1988, 'Trades, Quotes, Inventories and Information', *Journal of Financial Economics*, 2, pp. 229-252.

Haugen, R.A. & Senbet, L.W., 1978, 'The Insignificance of Bankruptcy Costs to the Theory of Optimal Capital Structure', *Journal of Finance*, 23, pp. 383-393.

Hines, J.R. Jr., 1996, 'Dividends and Profits: Some Unsubtle Foreign Influences', *Journal of Finance*, 51(2), pp. 661-689.

Hirota, S., 1999, 'Are Corporate Financing Decision Different in Japan? An Empirical Study on Capital Structure', *Journal of the Japanese and International Economics*, 13, pp. 201-229.

Hitt, M. A., Hoskisson, R. E., & Kim, H., 1997, 'International Diversification: Effects on Innovation and Firm Performance in Product-Diversified Firms, *Academy of Management Journal*, 40, pp.767-798.

Holder, M., Langrehr, F. & Hexter, L., 1998, 'Dividend Policy Determinants - An Investigation of the Influences of Stakeholder Theory', *Financial Management,* 27 (3), pp. 73-82.

Homaifar, G., Zietz, J. & Benkato, O., 1994, 'An Empirical Model of Capital Structure: Some New Evidence', *Journal of Business Finance and Accounting*, 21, pp. 1-14.

Homaifar, G., Zietz, J. & Benkato, O., 1998, 'Determinants of Capital Structure in Multinational and Domestic Corporations', *Economia Internazionale*, 51(2), pp. 189-210.

Hovakimian, A., Opler, T. & Titman, S., 2001, 'The Debt – Equity Choice', *Journal of Financial and Quantitative Analysis*, 36, pp. 1-24.

Howell, L.D., & Chaddick, B., 1994, 'Models of Political Risk for Foreign Investment and Trade: An Assessment of Three Approaches', *Columbia Journal of World Business*, pp. 70-91.

Howe, K. M., He, J., & Kao G.W., (1992), 'One Time Cash Flow Announcement and Free Cash Flow Theory: Share Repurchases and Special Dividends', *Journal of Finance,* 47, pp. 1963-1975.

Huberman, G., 1990, 'Dividend Neutrality with Transaction Costs', *Journal of Business*, 63, pp. 93-106.

Hughes, J.S., Logue, D.E. & Sweeney, R.J., 1975, 'Corporate International Diversification and Market Assigned Measure of Risk and Diversification', *Journal of Financial and Quantitative Analysis*, 10(4), pp. 627-637.

Hutchinson, M., & Glick, R., 1999, 'Banking and Currency Crises: How Common are the Twins?' *Pacific Basin Working Paper Series PB99-07*. Federal Reserve Bank of San Francisco.

Hymer, S., 1976, The International Operations of National Firms: A Study of Direct Foreign Investment, MIT Press, U.S.

Ikenberry, D., Lakonishok, J. & Vermaelen, T., 2000, 'Stock Repurchases in Canada: Performance and Strategic Trading', *Journal of Finance,* 55, pp. 2376-2397.

Ikenberry, D., Lakonishok, J., & Vermaelen, T., 1995, 'Market Underreaction to Open Market Share Repurchases', *Journal of Financial Economics,* 39, pp. 181–208.

Iorio, A.D., & Faff, R., 2000, 'An Analysis of Asymmetry in Foreign Currency Exposure of the Australian Equities Market', *Journal of Multinational Financial Management*, pp. 134-159.

Jalilvand, A., & Harris, R.S., 1984, 'Corporate Behaviour in Adjusting to Capital Structure and Dividend Targets: An econometric study', *Journal of Finance*, 39(1), pp.127-145.

Jaggi, B. & Gul, F.A., 1999, 'An Analysis of Joint Effects of Investment Opportunity Set, Free Cash Flows and Size on Corporate Debt Policy', *Review of Quantitative Finance and Accounting*, 12(4), pp. 371-381.

Jagannathan, M., Stephens, C.P. & Weisbach, M.S., 2000, 'Financial Flexibility and the Choice between Dividends and Stock Repurchases', *Journal of Financial Economics*, 57(3), pp. 355-384.

Jensen, M.C., 1986, 'Agency Costs of Free Cash Flow, Corporate Finance and Take-Overs', *American Economic Review*, 76, pp. 323- 339.

Jensen, M.C. & Meckling, W.H., 1976, 'Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure', *Journal of Financial Economics*, 3, pp. 305-360.

Jensen, G.H., Solberg, D.P. & Zorn, T.S., 1992, 'Simultaneous Determination of Insider Ownership, Debt and Dividend Policies', *Journal of Financial Quantitative Analysis*, 27, pp. 247- 261.

Jodice, D., 1985, Political Risk Assessment: An Annotated Biography, Greenwood Press, Westport.

John, K. & Nechman, D.C., 1985, 'Dividends, Dilution, and Taxes: A Signalling Equilibrium', *Journal of Finance*, 40(4), pp. 863-878.

John, K. & William, J., 1985, 'Risky Debt, Investment Incentives, and Reputation in a Sequential Equilibrium', *Journal of Finance*, 40, pp. 863-878.

John, K., Senbet, L.W., & Sundaram, A.K., 1991, 'Cross-Border Liability of Multi-national Enterprises, Border Taxes, and Capital Structure', *Financial Management*, 5, pp. 456-511.

Jordan, J., Lowe, J. & Taylor, P., 1998, 'Strategy and Financial Policy in U.K. Small Firms', *Journal of Business Finance & Accounting*, 25(1), pp. 1-27.

Jorion, P., 1990, 'The Exchange Rate Exposure of Multinationals', *Journal of Business*, 63, pp. 331-342.

Julio, B., & Ikenberry, D., 2005, 'Reappearing Dividends', Forthcoming in *Journal of Applied Corporate Finance*.

Kadapakkam, P., Kumar, P.C. & Riddick, L.A., 1998, 'The Impact of Cash Flows and Firm Size on Investment: The International Evidence', *Journal of Banking and Finance*, 22, pp. 293-320.

Kalay, A., 1982, 'The Ex-devidend Day Behavior of Stock Prices: A Re-examination of the Clientele Effect', *Journal of Finance*, 37, pp. 1059-1131.

Kalay, A., 1984, 'The Ex-dividend Day Behavior of Stock Prices: A Re-examination of the Clientele Effect: A reply', *Journal of Finance,* 39, pp. 557-61.

Kang, J. & Stulz, R.M., 1997, 'Why is there a Home Bias? An Analysis of Foreign Portfolio Equity Ownership in Japan', *Journal of Financial Economics,* 46, pp. 3-28.

Karpoff, J. M., & Walkling, M., 1990, 'Dividend Capture in NASDAQ Stocks', *Journal of Financial Economics*, 28, pp. 39-65.

Kahle, K.M. & Walking, R.A., 1996, 'The Impact of Industry Classifications on Financial Research', *Journal of Financial and Quantitative Analysis*, 31, pp. 309-355.

Kayhan, A., & Titman, S., 2004, 'Firms Histories and Their Capital Structures', *Journal of Financial Economics*, 62, pp. 114-156.

King, M.A., 1977, 'Corporate Taxation and Dividend Behavior-A Comment', *Review of Economic Studies*, 38, pp. 377-80.

Keller, G. & Warrack, B., 2003, Statistics for Management and Economics, 6th Edn, Duxbury, Thomson.

Kennedy, P., 1992, A Guide to Econometrics, 3rd Edn, the MIT Press, Massachusetts, U.S.

Keown, D.F., Martin, S., John, D. & Petty, J.W., 1985, 'Basic Financial Management', Prentice Hall, Inc, Englewood Cliffs.

Kester, C.W., 1986, 'Capital and Ownership Structure: A Comparison of United Studies and Japanese Manufacturing Corporations', *Financial Management*, pp. 5-16.

Kim, W.S. & Lyn, E.O., 1986, 'Excess Market Value, the Multinational Corporation, and the Tobin's Q-Ratio', *Journal of International Business Studies*, 19(2), pp. 195-217.

Kim, H. & Mei, J., 1994, 'Political Risk and Stock Returns: The Case of Hong Kong', Working Paper, New York University Salomon Brothers, pp. 94-130.

Kim, W.C., Hwang, P. & Burger, W.P., 1993, 'Multinationals' Diversification and Risk Return Trade-Off, *Strategic Management Journal*, 14, pp. 275-286.

Kim, W.S. & Sorensen, E.H., 1986, 'Evidence on the Impact of the Agency Cost of Debt on Corporate Debt Policy', *Journal of Financial and Quantitative Analysis,* 21(2), pp. 131-144.

Kim, S.H., & Haque, M., 1997, 'Asian Financial Crisis of 1997: Causes and Policy Responses', The Multinational Business Review, pp. 1-11.

Kogut, B., 1985, 'Designing Global Strategies: Profiting from Operational Flexibility', *Sloan Management Review*, 26, pp. 27-38.

Kogut, B., 1985, 'The Multinational Corporations in 1980's', MIT, Press, Cambridge, MA.

Kogut, B. & Sing, H., 1988, 'The Effect of National Culture on the Choice of Entry Mode', *Journal of International Business Studies*, 19 (3): 411-432.

Korajczyk, R.A. & Levy, A., 2003, 'Capital Structure Choice: Macroeconomic Conditions and Financial Constraints', *Journal of Financial Economics*, 68, pp. 75-109.

Korajczyk, R.A., Lucas, D. & McDonald, R.L., 1990, 'Understanding Stock Price Behavior Around the Time of Equity Issues', In R.G. Hubbard, eds., *Asymmetric* Information, Corporate Finance and Investment, NBER and University of Chicago Press, Chicago, IL.

Kornbluth, S.J. & Vinso, J.D., 1982, 'Capital Structure and the Financing of the Multinational Corporation: A Fraction Multi objective Approach', *The Journal of Financial and Quantitative Analysis*, 17(2), pp. 147-178.

Koski, J. L., & Scruggs, J.T., 1998, 'Who Trades Around the Ex-Devidend Day? Evidence from NYSE Audit File Data', *Financial Management*, 27, pp. 58-72.

Krainer, R.E., 1972, 'The Valuation and Financing of the Multinational Firm', *Managerial Finance*, 22, pp. 39-55.

Krainer, R.E., 1973, 'The Valuation and Financing of the Multinational Firm - Reply and Some Extensions,' *Kyklos*, 26(4), pp. 57-865.

Kraus, A. & Litzenberger, R.H., 1973, 'A State-Preference Model of Optimal Capital Structure', *Journal of Finance*, 28, pp. 911-921.

Kwok, C.C. & Reeb, D.M., 1998, 'Internationalisaton and Firm Risk: an Upstream-Downstream Hypothesis', *Journal of International Business Studies*, 31(4), pp. 611-629.

Lehn, K. & Poulsen, A., 1989, 'Free Cash Flow and Stockholder Gains in Going Private Transactions', *Journal of Finance*, 3, pp. 771-787.

Lakonishok, J. & Vermaelen, T., 1986, 'Tax Induced Trading Around Ex-Dividend Days', *Journal of Financial Economicss*, 3, pp. 287-320.

Lamont, O., 1998, 'Earnings and Expected Returns', *Journal of Finance*, 53(5), pp. 1563-1587.

Lang, L.H.P. & Litzenberger R.H., 1989, 'Dividend Announcements: Cash Flow Signalling vs. Free Cash Flow Hypothesis?', *Journal of Financial Economics,* 24, pp. 181-191.

Lang, L.H.P., Stultz, R.M. & Walking, R.A., 1991, 'A Test of Free Cash Flow Hypothesis: The Case of Bidder Returns', *Journal of Financial Economics*, 29, pp. 315-335.

Lang, L.H.P., Ofek, E. & Stultz, R.M., 1996, 'Leverage, Investment and Firm Growth', *Journal of Financial Economics*, 40, pp. 3-29.

La Porta, R.F., Lopez-de-Silanes, F., Shleifer, A. & Vishny, R., 2000, 'Agency Problems and Dividend Policies around the World', *Journal of Finance*, 55(1) pp. 1-33.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 2000, 'Investor Protection and Corporate Governance', *Journal of Financial Economics*, 58, pp. 3-27.

La Porta, R., Lopez-de-Silanes, F., & Shleifer, A., 2002, 'Government Ownership of Banks', *Journal of Finance,* 57, pp. 265-301.

Laux, P., Starks, L.T. & Yoon, P.S., 1998, 'The Relative Importance of Competition and Contagion in Intra-Industry Information Transfers: An Investigation of Dividend Announcements', *Financial Management,* 27, pp. 5-16

Lazo, S. A., 1999, 'Speaking of Dividends: How do Corporate Leaders See Payouts', *Barron's, Online*, 79, pp. 40.

Lee, K. & Kwok, Y., 1988, 'Multinational Corporations vs. Domestic Corporations: International Environmental Factors and Determinants of Capital Structure', *Journal of International Business Studies*, 19, pp. 195-217.

Leary, Mark T. & Michael R. Roberts, 2004, 'Financial Slack and Tests of the Pecking Order's Financial Hierarchy', Working Paper, Duke University.

Leary, M.T. & Roberts, M.R., 2005, 'Do firms rebalance their capital structures?', *Journal of Finance*, 60, pp. 2575-2619.

Leland, H.E. & Pyle, H., 1977, 'Informational Asymmetries, Financial Structure, and Financial Intermediation,' *Journal of Finance*, 32(2), pp. 371-387.

Lemmon, M.L, Roberts, M.R., & Zender, J.F., 'Back to the Beginning: Persistence and the Cross-Section of Corporate Capital Structure', *Journal of Finance*, Forthcoming.

Lev, B., 1974, 'On the Association Between Operating Leverage and Risk', *Journal of Financial and Quantitative Analysis*, 9(4), pp. 627-641.

Levi, M., 1994, 'Evidence on Exchange Rates and Valuation of Firms', In: Amihud, Y., Levich, R.M. (Eds.), Exchange Rates and Corporate Performance, Irwin Professional, New York.

Levy, H. & Sarnat, M., 1970, 'International Diversification of Investment Portfolios', *American Economic Reuiew*, 60, pp. 668-675.

Lie, E. & Lie, H., 1999, 'The Role of Personal Taxes in Corporate Decisions - An Empirical Analysis of Share Repurchases and Dividends', *Journal of Finance and Quantitative Analysis*, 34, pp. 534-552.

Little M., & Rubin, M., 2002, Statistical Analysis with Missing Data, New York.

Lintner, J., 1956, 'Distribution of Incomes of Corporations among Dividends, Retained Earnings, and Taxes', *American Economic Review*, 46(2), pp. 97-113.

Litzenberger Robert H. and Ramaswamy K., 1979, 'The Effect of Personal Taxes and Dividend on Capital Asset Prices: Theory and Empirical Evidence', *Journal of Financial Economics*, 7(2), pp. 163-195.

Litzenberger, R. and Ramaswamy, K., 1982, 'The Effects of Dividends on Common Stock Prices: Tax effects or Information Effects?', *Journal of Finance,* 35, pp. 429-43.

Llewellyn, D.H., 2001, 'The Handbook of Country and Political Risk Analysis', 3rd Edn, The PRS Group, USA.

Lloyd, W.P., Jahera, J.S. & Goldstein, S.J., Jr, 1986, 'The Relationship Between Returns, Ownership Structure, and Market Values', *Journal of Financial Research,* 13, pp. 214-225.

Lloyd, W.P., Jahera, J.S. Jr. & Page, D.E., 1985, 'Agency Costs and Dividend Payout Ratios', *Quarterly Journal of Business and Economics* , 24, pp. 19-29.

Long, J.B., Jr., 1978, 'The Market Valuation of Cash Dividends: A Case to Consider', *Journal of Financial Economics*, 6(2/3), pp. 235-264.

Long, M., & Malitz, I.B., 1985, '*Investment Patterns and Financial Leverage in Corporate Capital Structures in the United States*, Friedman, B., ed., The University of Chicago Press, Chicago.

Long, M.S., Malitz, I.B. & Sefcik, S.E., 1994, 'An Empirical Examination of Dividend Policy', *Journal of Financial and Quantitative Analysis,* 29, pp. 131-144.

Lopez-Gracia, J. & Aybar-Arias, C., 2000, 'An Empirical Approach to The Financial Behaviour Of Small and Medium Sized Companies', *Small Business Economics*, 14, pp. 55-63.

Love, R. & Wickramanayake, J., 1996, 'Industry Effects in the Capital Structure Decisions of Australian Companies', Working Paper, Monash University, pp. 1-31.

Lowe, J., Naughton, T. & Taylor, P., 1994, 'The Impact of Corporate Strategy on the Capital Structure of Australian Companies', *Managerial and Decision Economics,* 15, pp. 245-257.

Lucas, D.J. & McDonald, R.L., 1998, 'Shareholder Heterogeneity, Adverse Selection, and Payout Policy', *Journal of Financial and Quantitative Analysis*, 33, pp. 233-253.

Mackie-Mason, J., 1990, 'Do Firms Care Who Provides Their Financing?', in R. G. Hubbard ed, Asymmetric Information, Corporate Finance and Investment, University of Chicago Press, Chicago and London.

Madura, J., 1998, International Financial Management, 5th Edn, Cincinnati, Ohio: South-Western College Publishing.

Madura, J., & Fosberg, R.H., 1990, 'The Impact of Financing Sources on Multinational Projects, *Journal of Financial Research*, 13, pp. 61-69.

Madura, J., Wiant, K.J. & Wright, F.W., 2002, 'The Differential Effects of Agency Costs on Multinational Corporations', *Applied Financial Economics*, 12, pp. 347-359.

Magnus, B. & Lipsey, R.E., 1991, 'Firm Size and Foreign Operations of Multinationals" *The Scandinavian Journal of Economics*, 93(1), pp. 101-107.

Mandelker, G.N. & Ghon, R.S., 1984, 'The Impact of the Degrees of Operating and Financial Leverage on Systematic Risk of Common Stock', *Journal of Financial and Quantitative Analysis*, 119(1), pp. 45-57.

Mansi, S.A. & Reeb, D.M., 2002, 'Corporate International Activity and Debt Financing', *Journal of International Business Studies*, 33(1), pp. 129-147.

Marsh, P., 1982, 'The Choice Between Equity and Debt: An Empirical Study, '*Journal of Finance*', pp. 121-144.

Marsh. T.A. & Merton, R.C., 1987, 'Dividend Behaviour for the Aggregate Stock Market', *The Journal of Business*, 60(1), pp. 1-40.

Marcus, A.J., 1983, 'The Bank Capital Decision: A Time Series - Cross Section Analysis', *Journal of Finance*, 38, pp. 1217–1232.

Masulis, R.W., 1983, 'The Impact of Capital Structure Change on Firm Value: Some Estimates', *Journal of Finance*, 38(1), pp. 107-126.

Myers, S.C., 1987, Comments on The Informational Content of Dividends, in Macroeconomics: Essays in Honor of Franco Modigliani, John Bosons, Rudiger Dornbusch, and Stanley Fischer, eds., Cambridge, Massachusetts: MIT Press.

Myers, S.C., 1990, 'Still Searching for Capital Structure', Keynote address Delivered at HEC International Conference.

McManus, I., Gwilym, O.A.P. & Thomas, R., 2004, The Role of Payout Ratio in the Relationship Between Stock Returns and Dividend Yield', 31(9), pp. 1-34.

McClure, K.G., Clayton, R. & Hofler, R.A., 1999, 'International Capital Structure Differences Among the G7 Nations: A Current Empirical View,' *European Journal of Finance*, 5(2), pp. 141-164.

Meckling, W.H., 1976, 'Values and the Choice of the Model of the Individual in the Social Sciences', *Journal of International Business Studies*, 31(1), pp. 129-147.

Megginson, W., 1997, 'Corporate Finance Theory, Addison-Wesley Educational Publishers, Inc.

Mehra, R., 1978, 'On the Financing and Investment Decisions of Multinational Firms in the Presence of Exchange Risk', *Journal of Financial and Quantitative Analysis*, 13(2), pp. 277-287.

Mehran, H., 1992, 'Executive Incentive Plans, Corporate Control and Capital Structure', *Journal of Financial and Quantitative Analysis*, 27(4), pp. 539-560.

Michel, A. & Shaked, A., 1986, 'Multinational Corporations vs. Domestic Corporations Financial Performance and Characteristics', *Journal of International Business Studies*, 16, pp. 89-106.

Michael, I., 1979, 'Contagion Effects of Dividend Reduction or Omission Announcement in the Electricity Utility Industry, *The Financial Review*, 35, pp. 121-136.

Michaelas, N., Chittenden, F. & Poutziouris, F., 1999, 'Financial Policy and Capital Structure Choice in U.K. SMEs: Empirical Evidence from Company Panel Data, *Small Business Economics*, 12, pp. 113-130.

Miller, M.H., & Scholes, M.S., 1982, 'Dividends and Taxes: Some Emperical Evidence', *Journal of Political Economy*, 90(6), pp. 1118-41.

Miller, M.H. & Rock, K., 1985, 'Dividend Policy under Asymmetric Information', *Journal of Finance*, pp. 1031-1052.

Miller, M.H. & Modigliani, F., 1961, 'Dividend Policy, Growth and the Valuation of Shares', *Journal of Business*, 34, pp. 411-33.

Mikkelson, W.H. & Partch, M.M., 1986, 'Valuation Effects of Security Offerings and the Issuance Process,' *Journal of Financial Economics*, 15(1/2), pp. 31-60.

Modigliani, F., & Miller, M.H., 1958, 'The Cost of Capital, Corporation Finance and the Theory of Investment', *American Economic Review*, 53, pp. 261-297.

Modigliani, F., & Miller, M.H., 1963, 'Corporate Income Taxes and the Cost of Capital: A Correction', *American Economic Review*, 53, pp. 433-443.

Moh'd, M.A., L.G. Perry & Rimbey, J.N., 1995, 'An Investigation of the Dynamic Relationship Between Agency Theory and Dividend Policy', *The Financial Review*, 30(2), pp. 367-385.

Mohamad, H. M., 1995, 'Capital Structure in Large Malaysian Companies', *Management International Review*, 35(2), pp. 119-130.

Morgan, G. & Thomas, S.H., 1998, 'Taxes, Dividend Yields and Returns in the U.K. Equity Market', *Journal of Banking and Finance*, 22(4), pp. 405-423.

Mougoue, M. & Mukherjee, T.K., 1994, 'An Investigation into the Causality Among Firms' Dividend, Investment, and Financing Decisions', *Journal of Financial Research,* 17, pp. 517-530.

Murphy, K.J., 1985, 'Corporate Performance and Managerial Remuneration: an Empirical Analysis', *Journal of Accounting and Economics*, 7, pp. 11-42.

Myers, S.C., 1984, 'The Capital Structure Puzzle', *Journal of Finance*, 39, pp. 575-592.

Myers, S.C., 1977, 'Determinants of Corporate Borrowings', *Journal of Financial Economics*, 13, pp. 187-221.

Myers, S.C. & Majluf, N., 1984, 'Corporate Financing and Investment Decisions when Firms Have Information that Investors do not Have', *Journal of Financial Economics*, 5, pp.147-175.

Murray Z.F. & Vidhan, K.G., 2003, 'Testing the Pecking Order Theory of Capital Structure', *Journal of Financial Economics,* 67(2), pp. 217-248.

Naumann-Etienne, R., 1974, 'A Framework for Financial Decisions in Multinational Corporations – Summary of Recent Research', *Journal of Financial and Quantitative Analysis*, 9, pp. 859-74.

Nissim, D. & Ziv, A., 2001, 'Dividend Changes and Future Profitability', *Journal of Finance*, 56, pp. 2111–2133.

Noe, T.H., 2006, 'Creditor's Right and Multinational Capital Structure, Tulane University, New Orleans, Working paper.

Novaes, W. & Zingales, L., 1995, Capital Structure Choice when Managers are in Control: Entrenchment vs. Efficiency', *NBER* Working Paper – No. 5384, pp. 1-42.

Oswald, D., & Young, S., 2004, 'What Role Taxes and Regulation? A Second Look at Open Market Share Buyback Activity in the UK', *Journal of Business Finance & Accounting*, 31 pp. 257-292.

Ozawa, T., 1978, 'Japan's Multinational Enterprise: The Political Economy of Outward Dependency', *World Politics*, 30(4), pp. 517-537.

Opler, T.C. & Titman, S., 1994, 'Financial Distress and Corporate Performance', *Journal of Finance* 49, pp. 1015–1040.

Pettit, R. R., 1972, 'Dividend Announcements, Security Performance, and Capital Market Efficiency', *Journal of Finance*, 27(5), pp. 993-1007.

Pattenden, K. & Twite, G., 2004, 'Tax and Dividend Policy under Alternative Tax Regimes', working paper, University of Sydney/University of New South Wales.

Petersen, M.A., 2005, 'Estimating Standard Errors in Finance Panel Data Sets: Comparing approaches', Working Paper, Northwestern University.

Petersen, M.A. & Rajan, R.G., 1994, 'The Benefits of Lending Relationships: Evidence from Small Business Data', *Journal of Finance* 49(1), pp.3-37.

Pham, T. & Chan, P., 1993, 'A Test of Modigliani and Miller theory of Capital Structure: The value invariance proposition with Australian Evidence', *International Journal of Finance*, 6(1), pp.583-677.

Porter, M.E., 1985, Competitive Advantage: Creating and Sustaining Superior Performance, Free Press, New York.

Porter, M. E., 1986, 'Changing Pattern in International Competition', California Management Review, 28, pp. 940-971.

Porteba, J.M., 1987, 'How Burdensome are Capital Gains Taxes?: Evidence from the United States', 33, *Journal of Public Economics*, pp. 157 -189.

Porteba, J.M., & Summers, L.H., 1985, 'The Econômic Effects of Dividend Taxes', in Altman Edward and Subrahmanyam Marti (eds), Recent Advances in Corporate Finance, Homewood: Richard D. Irwin, pp. 227-284

Posner, R., 1973, 'An economic approach to legal procedure and judicial administration', *Journal of Legal Studies*, 2, pp. 399-458.

Prowse, S.D., 1990, 'Institutional Investment Patterns and Corporate Financial Behaviour in the United States and Japan', *Journal of Financial Economics*, 27, pp. 43-66.

Pogue, G., & Solnik, B., 1975, 'The Market Model Applied to European Common Stocks: Some Empirical Results', *Journal of Financial and Quantitative Analysis*, pp. 917-944.

Priest, G.L., 1977, 'The Common Law and the Selection of Efficient Rules', *Journal of Legal Studies*, 6, pp.101-165.

Rao, R.K.S & White, S.A., 1994, 'The Dividend Payouts of Private Firms: Evidence from Tax Court Decisions', *Journal of Financial Research*, 17(4), pp. 449-464.

Rau, P., & Vermaelen, T., 2002, 'Regulation, Taxes and Share Repurchases in the U.K.', *Journal of Business*, 75, pp. 245–82.

Rajan, R.G. & Zingales, L., 1995, 'What Do We Know about Capital Structure? Some Evidence from International Data', *Journal of Financial Economics*, 51, pp. 1421-1460.

Ramaswamy, K.K., Galen, K. & William R., 1996, 'Measuring the Degree of Internationalization of a Firm: A Comment', *Journal of International Business Studies*, 27(1), pp. 167-177.

Reeb, D., 1998, 'The Relative Cost of Financial Distress in the International Firm', *Advances in International Banking and Finance*, pp. 339-54.

Reeb, D.M., Sattar A.M. & Allee, M.J., 2001, 'Firm Internationalization and the Cost of Debt Financing: Evidence from Non-Provisional Publicly Traded Debt', *Journal of Financial and Quantitative Analysis*, 36(3), pp. 395-414.

Reeb, D.M., Kwok C.C.Y. & Baek, H.Y., 1998, 'Systematic Risk of the Multinational Corporation', *Journal of International Business Studies*, 29(2), pp. 263-279.

Remmers, L., Stonehill, A., Wright, R. & Beekhuisen, T., 1974, 'Industry and Size as Debt Ratio Determinants in Manufacturing Internationally', *Financial Management*, 2, pp. 24-32.

Rhee, S.G., Chang, R.P. & Koveos, P.E., 1985, 'The Currency-of-Denomination Decision for Debt Financing', *Journal of International Business Studies*, 16, pp. 143–150.

Rice, G. & Mahmoud, E., 1990, 'Political Risk Forecasting By Canadian Firms', *International Journal of Forecasting*, 6(1), pp. 89-102.

Richardson, S., Tuna, I. & Wysocki, M., 2004, 'Accounting for Taste: Board Member Preferences and Corporate Policy Choices', Working paper, The Wharton School of the University of Pennsylvania, U.S.

Robock, H.S. & Simmonds, S., 1989, International Business and Multinational Enterprises, 4th Edn, Irwin, Homewood, IL.

Robbins, E. & Schatzberg, J., 1986, 'Callable Bonds: A Risk Reducing Signalling Approach', *Bell Journal of Economics*, 8, pp. 23-40.

Robbins, S.M. & Stobaugh, R.B., 1972, 'Capital Mobility and the International Firm: Comment', New York: *National Bureau of Economic Research*, pp. 354-365.

Rogalski, R. & Vinso, J., 1977, 'Stock returns, money supply, and the direction of causality', *Journal of Finance* 32, pp. 1017-1030

Ross, S.A., 1985, 'The Determination of Financial Structure: The Incentive-Signaling Approach', *Bell Journal of Economics*, 8, pp. 1421-1460.

Rozeff, M., 1982, 'Growth, Beta and Agency Costs as Determinants of Dividend Payout Ratios', *Journal of Financial Research*, 5, pp. 249-259.

Rugman, A.M., 1976, 'Discussion: Corporate International Diversification and Market Assigned Measures of Risk and Diversification (in Capital Budgeting Decisions)', *Journal of Financial and Quantitative Analysis*,10(4), pp. 651-652.

Ruigrok, W., & Wagner, H., 2003, 'Internationalization and Performance: An organizational learning perspective', *Management International Review*, 43, pp.63-83.

Sachs, J.D., 1983, 'Theoretical Issues in International Borrowing', NBER Working Paper 1189, Cambridge, MA.

Sambharya, R.B., 1995, 'The Effect of International Diversification and Product Diversification Strategies on the Performance of U.S. Based Multinational Corporations, *Management International Review*, 35(3), pp. 197-218.

Sawicki, J., 2003, 'Corporate Governance and Dividend Policy in Southeast Asia Pre-and Post-Crises', Working paper, Nanyang Business School, Singapore.

Schooley, D. and Barney L. D., 1994, 'Using Dividend Policy and Managerial Ownership to Reduce Agency costs', *Journal of Financial Research*, 17, pp. 363-373.

Schwartz, E. & Aronson, J.R., 1967, 'Some Surrogate Evidence in Support of the Concept of Optimal Financial Structure', *Journal of Finance*, 22(1), pp. 10-18.

Scott, J.H., Jr., 1977, 'Bankruptcy, Secured Debt, and Optimal Capital Structure', *Journal of Finance*, 32(1), pp. 1-19.

Scott, J. H., 1976, 'A Theory of Optimal Capital Structure', *Bell Journal of Economics*, 7, pp. 33-54.

Scott, D.F. & Martin, J.D., 1975, 'Industry Influence on Financial Structure', *Financial Management*, 1, pp. 67-73.

Sekely, W.S. & Collins, J.M., 1988, 'Cultural Influences on International Capital Structure' *Journal of International Business Studies,* pp. 87-100.

Senbet, L., 1979, 'International Capital Market Equilibrium and the Multinational Firm Financing and Investment Policies', *Journal of Financial and Quantitative Analysis*, 14, pp. 455-480.

Severn, A.K., 1973, 'The Financing of The Multinational Firm – Comment', *Kyklos*, 26(4), pp. 852-856.

Shaked, I., 1986, 'Are Multinational Corporations Safer?', *Journal of International Business Studies*, 16, pp.83-106.

Shapiro, A.C, 1996, Multinational Financial Management, 5th Edn, Prentice-Hall, New Jersey.

Shapiro, A.C., 1978, 'Financial Structure and the Cost of Capital in the Multinational Corporation', *Journal of Financial and Quantitative Analysis*, pp. 211-266.

Short H., Zhang, H., & K. Keasey, 2002, 'The Link between Dividend Policy and Institutional Ownership', *Journal of Corporate Finance*, 8, pp. 105-122.

Shyam-Sunder, L., Myers, S.C., 1999, 'Testing Static Tradeoff Against Pecking Order Models of Capital Structure', *Journal of Financial Economics*, 51, pp. 219-244.

Siddiqi, M., 1997, 'Using Ex-day Returns to Separate the Tax and Information Effects of Dividend Changes, *Journal of Economics and Finance*, 21, pp. 83-92.

Simunic, D.A., 1980, 'The Pricing of Audit Services: Theory and Evidence', *Journal of Accounting Research*, 18(1), pp. 161-190.

Singh, A., 1995, 'Corporate Financial Patterns in Industrialising Economies: A Comparative Study', IFC Technical Paper No. 2: IFC, Washington DC, USA.

Singh, K., & Hodder, J.E., 2000, 'Multinational Capital Structure and Financial Flexibility', *Journal of International Money and Finance*, 19, pp. 853-884.

Shleifer, A., & Vishny, R.W., 1986, 'Large Shareholders and Corporate Control', *Journal of Political Economy*, 94, pp. 461-488.

Smith, J.K., 1997, 'The Effect of the Tax Reform Act of 1986 on the Capital Structure of Foreign Subsidiaries', *Journal of the American Taxation Association*, 2, pp. 1-18.

Smith, C., 1977, 'Alternative Methods for Raising Capital: Rights vs. Underwritten Offerings', *Journal of Financial Economics*, 5, pp. 273-307.

Smith, C. & Warner, J., 1979, 'On Financing Contracting: An Analysis of Bond Covenants,' *Journal of Financial Economics*, 7, pp. 117-161.

Smith, C.W. & Watts, R., 1992, 'The Investment Opportunity Set and Corporate Financing, Dividend and Compensation Policies', *Journal of Financial Economics*, 32, pp. 263-292.

Solnik, B. H., 1974, 'Why not diversify internationally?', *Financial Analyst Journal,* 30(4), pp. 48-54.

Soter, D., Brigham, E., & Evanson, P., 1996, 'The Dividend Cut Heard 'Round the World: The Case of FPL', *Journal of Applied Corporate Finance*, 9, pp. 4-15.

Sterk, W.E. & Vandenberg P.A., 1990, 'The Market Valuation of Tax Dividends and the tax Differential Theory of Dividend Policy: A Case Revisited', *The Financial Review*, 25(3), pp. 441-455.

Stickel, S.E., 1991, 'Common Stock Returns Surrounding Earnings Forecast Revisions: More Puzzling Evidence', *The Accounting Review*, 66, pp. 402-416.

Stohs, M.H. & Mauer, D.C., 1996, 'The Determinants of Corporate Debt Maturity Structure', *Journal of Business*, 69(3), pp. 279-312.

Stonehill, A. & Stilz, T., 1969, 'Financial Structure and Multinational Corporations', *California Management Review*, pp. 1-96.

Stultz, R.M., 1988, Managerial Control of Voting Rights: Financing Policies and the Market for Corporate Control, *Journal of Financial Economics*, 20(2), pp. 25–54.

Stultz, R.M., 1990, 'The Effect of Capital Structure on a Firm's Liquidation Decision', *Journal of Financial Economics*, 26, pp. 3-28.

Sullivan, D., 1994, 'Measuring the Degree of Geographic Diversification of a Firm', *Journal of International Business Studies*, 25, pp. 325-374.

Taggarat, R.A., 1977, 'A Model of Corporate Financing Decisions', *Journal of Finance*, 32(4), pp.1467-1484.

Tallman, S. & Li, J.T., 1996, 'Effects of International Diversity and Product Diversity on the Performance of Multinational Firms', *Academy of Management Journal*, 39 (1), pp. 179-196.

Thies, C.F. & Klock, M.S., 1992, 'Determinants of Capital Structure', *Review of Financial Economics*, 1, pp. 40-52.

Thomadakis, S. & Usmen, N., 1991, 'Foreign Project Financing in Segmented Capital Markets: Equity Versus Debt', *Financial Management*, 1991, 20(4), pp. 42-53.

Titman, S., 1984, 'The Effect of Capital Structure on a Firm's Liquidation Decision', *Journal of Financial Economics*, 13, pp.137-151.

Titman, S. & Wessels, R., 1988, 'The Determinants of Capital Structure Choice', *Journal of Finance*, 43, pp. 1-18.

Tosi, H.L., Werner, S., Katz, J.P. & Mejia, L.R., 2000, 'Hoe Much Does Performance Matter? A Meta-analysis of CEO Pay Studies', *Journal of Management*, 26, pp.301-339.

Toy, N., Stonehill, A., Remmers, L., Wright, R. & Beekhuisen, R., 1974, 'A Comparative International Study for Growth, Profitability, and Risk as Determinants of Corporate Debt Ratios in the Manufacturing Sector', *Journal of Financial and Quantitative Analysis*, 9, pp. 875-886.

Twite, G., 2001, 'Capital Structure and taxes: Evidence from the Australian Dividend Imputation tax System', *International Review of Finance*, 2(4), pp. 217-251.

Van der Wijst, N. & Turik, R., 1993, 'Determinants of Small Firms Debt Ratios: An Analysis of Retail Panel Data', *Small Business Economics*, 5, pp. 55–65.

Venkatesh, P.C., 1991, 'Trading Costs and Ex-day Behavior: an Examination of Primes and Stocks' '*Financial Management*, 20(3), pp. 84–95.

Vermaelen, T., 1981, 'Common Stock repurchases and Market Signaling', *Journal of Financial Economics*, 9, pp. 139-183.

Vermaelen, T., 1984, 'Repurchase Tender Offers, Signaling, and Managerial Incentives', *Journal of Financial and Quantitative Analysis*, 19(2), pp. 163-181.

Vinso, J.D., 1982, 'Financial Planning for the Multinational Corporation with Multiple Goals', *Journal of International Business Studies*, pp. 43-58.

Vogt S.C., 1994, 'The Cash Flow/Investment Relationship: Evidence from U.S. Manufacturing Firm', *Financial Management*, 23, pp. 3-20.

Warner, J.B., 1979, 'Bankruptcy Costs: Some Evidence', *Journal of Finance*, 32, pp. 337- 347.

Wald, J.K., 1999, 'How Firm Characteristics Affect Capital Structure: An International Comparison', *Journal of Financial Research*, 22(2), pp. 161-187.

Welch, I., 2004, 'Capital structure and stock returns', *Journal of Political Economy*, pp. 106–131

Weston, J.F. & Brigham, E.F., 1990, 'Essentials of Managerial Finance', 9th Edn, The Dryden Press, Fl, Orlando.

Wilkins, M., 1988, 'The Free-Standing Company', *Economic History Review*, 61(2), pp. 259-282.

Whited, T.M., 1992, 'Debt, Liquidity Constraints, and Corporate Investment: Evidence from Panel Data', *Journal of Finance*, 47(4), pp. 1425-1460.

World Investment Report, 2005, United Nations Conference on Trade and Development (UNCTAD), Press Conference, http://www.unctad.org/press.

Wooldridge, J.M., 2000, Introductory Econometrics, 6th Edn, Prentice Hall, USA.

Wright, F.W., Madura, J. & Wiant, K.J., 2002, 'The Differential Effects of Agency Costs on Multinational Corporations', *Applied Financial Economics*, 12(5), pp. 347-359.

APPENDICES

APPENDIX 1 (A): TOP 25 MCS FROM DEVELOPED NATIONS RANKED BY FOREIGN ASSETS (2003)

(Millions of U$ Dollars and Number of Employees)

Ranking by:						Assets		Sales		Employment		TNI[b]	No. of affiliates		
Foreign assets	TNI[b]	II[c]	Corporation	Home economy	Industry	Foreign	Total	Foreign	Total	Foreign	Total	(Per cent)	Foreign	Total	II[c]
1	77	37	General Electric	United States	Electrical & electronic equip.	258 900	647 483	54 086	134 187	150 000	305 000	43.2	1068	1398	76.39
2	7	95	Vodafone Group Plc	United Kingdom	Telecommunications	243 839	262 581	50 070	59 893	47 473	60 109	85.1	71	201	35.32
3	72	12	Ford Motor Company	United States	Motor vehicles	173 882	304 594	60 761	164 196	138 663	327 531	45.5	524	623	84.11
4	90	65	General Motors	United States	Motor vehicles	15 4466	448 507	51 627	185 524	104 000	294 000	32.5	177	297	59.60
5	10	78	British Petroleum Co. Plc	United Kingdom	Petroleum expl./ref./distr.	141 551	177 572	192 875	232 571	86 650	103 700	82.1	60	117	51.28
6	31	41	ExxonMobil Corp.	United States	Petroleum expl./ref./distr.	116 853	174 278	166 926	237 054	53 748	88 300	66.1	218	294	74.15
7	22	80	Royal Dutch/Shell Group	United Kingdom/ Netherlands	Petroleum expl./ref./distr.	112 587	168 091	129 864	201 728	100 000	119 000	71.8	454	929	48.87
8	68	94	Toyota Motor Corp.	Japan	Motor vehicles	94 164	189 503	87 353	149 179	89 314	264 410	47.3	124	330	37.58
9	16	48	Total	France	Petroleum expl./ref./distr.	87 840	100 989	94 710	118 117	60 931	110 783	74.1	419	602	69.60
10	62	69	France Telecom	France	Telecommunications	81 370	126 083	21 574	52 202	88 626	218 523	48.8	118	211	55.92
11	14	58	Suez	France	Electricity, gas and water	74 147	88 343	33 715	44 720	111 445	172 291	74.7	605	947	63.89
12	89	34	Electricite De France	France	Electricity, gas and water	67 069	185 527	16 062	50 699	51 847	167 309	32.9	204	264	77.27
13	80	63	E.On	Germany	Electricity, gas and water	64 033	141 260	18 659	52 330	29 651	69 383	41.2	478	790	60.51
14	85	74	Deutsche Telekom AG	Germany	Telecommunications	62 624	146 601	23 868	63 023	75 241	248 519	37.0	97	178	54.49
15	59	67	RWE Group	Germany	Electricity, gas and water	60 345	98 592	23 729	49 061	53 554	127 028	50.6	377	650	58.00
16	23	23	Hutchison Whampoa Ltd	Hong Kong, China	Diversified	59 141	80 340	10 800	18 699	104 529	126 250	71.4	1900	2350	80.85
17	32	40	Siemens AG	Germany	Electrical & electronic equip.	58 463	98 011	64 484	83 784	247 000	417 000	65.3	753	1011	74.48
18	53	46	Volkswagen Group	Germany	Motor vehicles	57 853	150 462	71 190	98 367	160 299	334 873	52.9	203	283	71.73
19	21	35	Honda Motor Co Ltd	Japan	Motor vehicles	53 113	77 766	54 199	70 408	93 006	131 600	72.0	102	133	76.69
20	34	89	Vivendi Universal	France	Diversified	52 421	69 360	15 764	28 761	32 348	49 617	65.2	106	238	44.54
21	42	83	ChevronTexaco Corp.	United States	Petroleum expl./ref./distr.	50 806	81 470	72 227	120 032	33 843	61 533	59.2	93	201	46.27
22	3	30	News Corporation	Australia	Media	50 803	55 317	17 772	19 086	35 604	38 500	92.5	213	269	79.18
23	65	29	Pfizer Inc	United States	Pharmaceuticals	48 960	116 775	18 344	45 188	73 200	122 000	47.5	73	92	79.35
24	93	85	Telecom Italia Spa	Italy	Telecommunications	46 047	101 172	6 816	34 819	14 910	93 187	27.0	33	73	45.21
25	50	18	BMW AG	Germany	Motor vehicles	44 948	71 958	35 014	47 000	26 086	104 342	54.0	129	157	82.17

[a] All data are based on the companies' annual reports unless otherwise stated.

[b] Ranking among top 50 TNCs based in developing countries. TNI, the abbreviation for Transnationality Index, is calculated as the average of the following three ratios: foreign assets to total assets, foreign sales to total sales and foreign employment to total employment.

[c] Ranking among top 50 TNCs based in developing countries. II, the abbreviation for Internationalization Index, is calculated as the number of foreign affiliates divided by the number of all affiliates.

Note: Affiliates counted in this table refer to only majority-owned affiliates.

APPENDIX 1 (B): TOP 25 MCS FROM DEVELOPING NATIONS RANKED BY FOREIGN ASSETS (2003)

(Millions of US$ Dollars and Number of Employees)

Ranking by: Foreign assets	TNI[b]	II[c]	Corporation	Home economy	Industry	Assets Foreign	Assets Total	Sales Foreign	Sales Total	Employment Foreign	Employment Total	TNI[b] (Per cent)	No. of affiliates Foreign	No. of affiliates Total	II[c]
1	7	41	Hutchison Whampoa Limited	Hong Kong, China	Diversified	59 141	80 340	10 800	18 699	104 529	126 250	71.4	1900	2350	80.85
2	27	39	Singtel Ltd.	Singapore	Telecommunications	17 911	21 668	4 672	68 848	8 642	21 716	43.1	23	30	76.67
3	42	35	Petronas - Petroliam Nasional Bhd	Malaysia	Petroleum expl./ref./distr.	16 114	53 457	8 981	25 661	3 625	30 634	25.7	167	234	71.37
4	26	48	Samsung Electronics Co., Ltd.	Republic of Korea	Electrical & electronic equip.	2 387	56 524	41 362	54 349	19 026	55 397	44.1	80	89	89.89
5	12	36	Cemex S.A.	Mexico	Construction Materials	11 054	16 021	5 189	7 167	17 051	25 965	69.0	35	48	72.92
6	23	37	América Móvil	Mexico	Telecommunications	8 676	13 348	3 107	7 649	8 403	18 471	50.4	12	16	75.00
7	31	24	China Ocean Shipping (Group) Co.	China	Transport and storage	8 457	18 007	6 076	9 163	4 600	64 586	40.1	22	56	39.29
8	46	7	Petroleo Brasileiro S.A. - Petrobras	Brazil	Petroleum expl./ref./distr.	7 827	53 612	8 665	42 690	5 810	48 798	15.6	13	79	16.46
9	25	47	LG Electronics Inc.	Republic of Korea	Electrical & electronic equip.	7 118	20 173	14 443	29 846	36 268	63 951	46.8	134	151	88.74
10	16	34	Jardine Matheson Holdings Ltd	Hong Kong, China	Diversified	6 159	8 949	5 540	8 477	57 895	110 000	62.3	16	23	69.57
11	10	14	Sappi Limited	South Africa	Paper	4 887	6 203	3 287	4 299	9 454	16 939	70.4	115	456	25.22
12	33	45	Sasol Limited	South Africa	Industrial chemicals	4 226	10 536	5 033	9 722	5 643	31 150	36.7	21	25	84.00
13	50	30	China National Petroleum Corp.	China	Petroleum expl./ref./distr.	4 060	97 653	5 218	57 423	22 000	1 167 129	5.0	119	204	58.33
14	22	2	Capitaland Limited	Singapore	Real estate	3 936	10 316	1 449	2 252	5 033	10 175	50.7	2	61	3.28
15	8	43	City Developments Limited	Singapore	Hotels	3 879	7 329	703	930	11 549	13 703	70.9	228	275	82.91
16	4	49	Shangri-La Asia Limited	Hong Kong, China	Hotels and motels	3 672	4 743	436	542	12 619	16 300	78.4	29	31	93.55
17	15	33	Citic Pacific Ltd.	Hong Kong, China	Diversified	3 574	7 167	2 409	3 372	8 045	12 174	62.5	2	3	66.67
18	45	16	CLP Holdings	Hong Kong, China	Electricity, gas and water	3 564	9 780	298	3 639	488	4 705	18.3	3	11	27.27
19	41	21	China State Construction Engineering Corp.	China	Construction	3 417	9 677	2 716	9 134	17 051	121 549	26.4	28	75	37.33
20	24	22	MTN Group Limited	South Africa	Telecommunications	3 374	4 819	1 308	3 595	2 601	6 063	49.8	6	16	37.50
21	2	26	Asia Food & Properties	Singapore	Food & beverages	3 331	3 537	1 232	1 273	32 295	41 800	89.4	2	4	50.00
22	11	46	Flextronics International Ltd.	Singapore	Electrical & electronic equip.	3 206	5 634	4 674	8 340	80 091	82 000	70.2	92	106	86.79
23	30	17	Companhia Vale do Rio Doce	Brazil	Mining & quarrying	3 155	11 434	6 513	7 001	224	29 632	40.5	16	55	29.09
24	29	10	YTL Corp. Berhad	Malaysia	Utilities	2 878	6 248	489	1 060	1 518	4 895	41.1	24	115	20.87
25	20	38	Hon Hai Precision Industries	Taiwan Province of China	Electrical & electronic equip.	2 597	6 032	4 038	10 793	78 575	93 109	54.9	25	33	75.76

[a] All data are based on the companies' annual reports unless otherwise stated.

[b] Ranking among top 50 TNCs based in developing countries. TNI, the abbreviation for Transnationality Index, is calculated as the average of the following three ratios: foreign assets to total assets, foreign sales to total sales and foreign employment to total employment.

[c] Ranking among top 50 TNCs based in developing countries. II, the abbreviation for Internationalization Index, is calculated as the number of foreign affiliates divided by the number of all affiliates.

Note: Affiliates counted in this table refer to only majority-owned affiliates.

APPENDIX 2 (A): Pearson Correlation matrix for DCs

This table reports descriptive statistics of sample characteristics for DCs and MCs across five countries. The variables reported in this table contains all the variables (both dependent and independent) which will be used for the testing purpose of hypothesis in Chapter 1 3, 4, 5, 6 and 7. Alphabetical notations have been used for easier reporting and reading purposes. The variables are: A - The dependent variable LTD (long-term debt ratio) is calculated using long-term debt to long-term debt plus market value of equity. B - The dependent variable is measured as total long-term debt to total assets which is indicated by *LTDTA*. C - The dependent variable is measured as total debt to total assets which is indicated by *TDA*. D - Short-term debt (e.g. less than 12 months: debt in current liabilities) is scaled by total assets. E - DIVC $_{i,t}$ (cash payout ratios) is calculated using cash dividend paid to net earnings. F - SR$_{i,t}$ (stock return) is measured as expected return of individual corporations by using CAPM. G - DIVR $_{i,t}$ (cash and share repurchase dividend payout ratios) is calculated as cash plus change in treasury stock scaled by net earnings. H - The dependent variables has been employed *DIVCTA* $_{i,t}$ (cash payout ratios) is calculated using cash dividend paid to total assets. I - *DIVER* $_{i,t}$ (diversification) is the total number of subsidiaries that any firm has within their domicile country and overseas. J - *FX* $_{i,t}$ (foreign exchange risk) is calculated by the ratio of foreign sales to total sales revenue. K - *PR* $_{i,t}$ (political risk) is the sum of all the MCs subsidiaries countries' political risk ratings exposed to the proportion of each sale that a subsidiary makes overseas. L - *CFV* $_{i,t}$ (cash flow variation) is the standard deviation of the first difference in earnings before interest and taxes, scaled by mean value of interest expense. M - *BETA* $_{i,t}$ - *firm-specific risk* is measured as the covariance of firm return index and market index divided by variance of market index – market model. N - Alman's Z score. [62] O - *ATR* $_{i,t}$ (average tax ratios) is calculated as total tax paid per annum scaled by net profit. P - NDTS (Non-Debt Tax Shield) is calculated by total annual depreciation expense over total assets. Q - *TAX_CLTL* $_{i,t}$ (tax clientele) is the ratio of number of common shares outstanding by the institutional shareholders to number of total shares outstanding. R - *PROF* (Profitability) is the average ratio of net income over total sales for the last three years. S - *AGC* $_{i,t}$ (agency cost) is the natural logarithm of total shareholders. T - *FCF* $_{i,t}$ (free cash flow) measured after Lehn and Poulsen (1989) is the sum of earnings before interest and tax plus depreciation plus amortization plus tax paid minus dividend paid and minus interest expense and then it was scaled by 10000 so that the magnitude of this variable is compatible with other measurements. U - *GROW_PT* $_{i,t}$ (past growth) which is measured as the change in total assets over total assets. V - *GROW_MB* $_{i,t}$ (market value of equity to book value of asset) which is measured as market value of asset to book value of asset. W - *SIZE* $_{i,t}$ is the natural logarithm of total asset. X - *SIZE* $_{i,t}$ is the natural logarithm of total revenue. Y - CVA $_{i,t}$ (collateral value of assets) is the ratio of fixed assets to total assets. Z - *AGE*$_{i,t}$ is the natural logarithm of the age of the firm in years from date of incorporation by the market value of equity.

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
LTD_MV	A	1																									
LTD_BV	B	0.64	1																								
		2.75																									
TD_BV	C	0.59	0.81	1																							
		2.45	**5.18**																								
STD_BV	D	0.13	0.00	0.56	1																						
		1.16	**1.00**	**2.29**																							
DIVC	E	0.02	0.05	-0.04	-0.13	1																					
		1.02	**1.05**	**0.96**	**0.89**																						
SR	F	-0.02	-0.10	-0.13	-0.05	0.18	1																				
		0.98	**0.91**	**0.88**	**0.95**	**1.22**																					
DIV(Share Rep)	G	0.10	0.13	0.05	-0.08	0.09	-0.02	1																			
		1.11	**1.14**	**1.05**	**0.92**	**1.10**	**0.98**																				
DIVCR	H	0.07	0.11	0.00	-0.14	0.85	0.13	0.60	1																		
		1.08	**1.12**	**1.00**	**0.87**	**6.55**	**1.15**	**2.53**																			
DIVER	I	0.18	0.27	0.10	-0.17	0.10	0.00	0.23	0.21	1																	

62 $1.2 * \left(\frac{\frac{Current\ Asset}{Current\ Liabilities}}{Total\ Asset} \right) + 1.4 * \left(\frac{Retained\ Earnings}{Total\ Asset} \right) + 3.3 * \left(\frac{EBIT}{Total\ Asset} \right) + 0.6 * \left(\frac{Market\ Value\ of\ Equity}{Book\ Value\ of\ Total\ Liability} \right) + \left(\frac{Sales}{Total\ Asset} \right)$

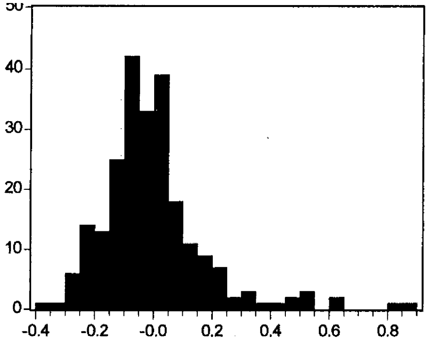
		1.22	**1.36**	**1.11**	**0.85**	**1.12**	**1.00**	**1.29**	**1.26**																		
FX	J	-0.02	-0.03	-0.05	-0.05	-0.05	0.00	0.01	-0.03	0.05	1																
		0.98	**0.97**	**0.95**	**0.95**	**0.95**	**1.00**	**1.01**	**0.97**	**1.05**																	
PR	K	-0.03	0.06	-0.09	-0.18	0.18	0.02	0.07	0.18	0.28	0.04	1															
		0.97	**1.06**	**0.92**	**0.85**	**1.22**	**1.02**	**1.08**	**1.23**	**1.38**	**1.04**																
BPTCY	L	0.09	-0.08	0.08	0.22	-0.34	-0.02	-0.11	-0.33	-0.20	0.05	-0.21	1														
		1.10	**0.93**	**1.09**	**1.29**	**0.74**	**0.98**	**0.90**	**0.75**	**0.84**	**1.05**	**0.83**															
BETA	M	0.14	0.25	0.12	-0.11	0.06	-0.05	0.23	0.17	0.37	-0.03	0.12	-0.14	1													
		1.16	**1.34**	**1.14**	**0.90**	**1.06**	**0.96**	**1.31**	**1.21**	**1.58**	**0.97**	**1.14**	**0.88**														
CFV	N	-0.09	0.01	-0.01	-0.04	-0.01	-0.03	0.01	0.00	-0.02	0.00	0.01	-0.01	0.05	1												
		0.92	**1.01**	**0.99**	**0.96**	**0.99**	**0.98**	**1.01**	**1.00**	**0.98**	**1.00**	**1.01**	**0.99**	**1.05**													
ATR	O	0.01	0.01	0.01	0.01	0.07	0.00	0.01	0.07	0.00	0.00	0.01	-0.02	0.03	0.00	1											
		1.01	**1.01**	**1.01**	**1.01**	**1.08**	**1.00**	**1.01**	**1.07**	**1.00**	**1.00**	**1.01**	**0.98**	**1.03**	**1.00**												
NDTS	P	-0.04	0.09	0.06	-0.01	-0.04	-0.05	-0.02	-0.04	0.05	0.08	0.09	0.07	0.04	0.01	0.00	1										
		0.96	**1.10**	**1.07**	**0.99**	**0.96**	**0.96**	**0.99**	**0.96**	**1.06**	**1.09**	**1.10**	**1.08**	**1.04**	**1.01**	**1.00**											
TAX_CLTL	Q	0.07	0.06	0.03	-0.04	0.04	-0.01	0.03	0.05	0.10	-0.02	0.02	-0.03	0.04	0.03	0.00	0.05	1									
		1.07	**1.06**	**1.03**	**0.96**	**1.05**	**0.99**	**1.03**	**1.05**	**1.12**	**0.98**	**1.02**	**0.97**	**1.04**	**1.03**	**1.00**	**1.05**										
PROF	R	-0.04	-0.01	-0.09	-0.11	0.06	0.00	0.02	0.06	0.02	-0.04	0.00	-0.11	0.02	0.01	0.00	-0.12	0.00	1								
		0.96	**0.99**	**0.92**	**0.90**	**1.07**	**1.00**	**1.02**	**1.06**	**1.02**	**0.97**	**1.00**	**0.90**	**1.02**	**1.01**	**1.00**	**0.89**	**1.00**									
AGC	S	0.09	0.19	0.01	-0.22	0.11	0.01	0.14	0.17	0.47	0.02	0.29	-0.16	0.30	0.04	0.00	0.07	0.01	0.01	1							
		1.10	**1.23**	**1.01**	**0.82**	**1.13**	**1.01**	**1.17**	**1.20**	**1.88**	**1.02**	**1.41**	**0.86**	**1.44**	**1.04**	**1.00**	**1.07**	**1.01**	**1.01**								
FCF	T	0.04	0.04	0.03	-0.01	0.00	0.00	0.03	0.01	0.00	0.02	-0.02	0.00	0.01	0.00	0.00	-0.01	0.00	0.00	0.00	1						
		1.04	**1.04**	**1.03**	**0.99**	**1.00**	**1.00**	**1.03**	**1.01**	**1.00**	**1.02**	**0.98**	**1.00**	**1.01**	**1.00**	**1.00**	**0.99**	**1.00**	**1.00**	**1.00**							
GROW_PT	U	0.05	-0.04	-0.06	-0.06	0.02	-0.27	0.00	0.02	0.03	0.02	0.00	-0.03	0.00	-0.09	0.00	0.01	0.01	0.02	0.02	0.00	1					
		1.06	**0.96**	**0.94**	**0.95**	**1.02**	**0.79**	**1.00**	**1.02**	**1.03**	**1.02**	**1.00**	**0.97**	**1.00**	**0.92**	**1.00**	**1.01**	**1.01**	**1.02**	**1.02**	**1.00**						
GROW_MV	V	-0.07	0.05	0.03	-0.02	0.00	-0.03	0.00	0.01	-0.01	-0.01	0.01	0.00	0.05	0.89	0.00	0.03	0.03	0.00	0.03	0.00	-0.10	1				
		0.93	**1.05**	**1.03**	**0.98**	**1.00**	**0.97**	**1.00**	**1.01**	**0.99**	**0.99**	**1.01**	**1.00**	**1.05**	**8.93**	**1.00**	**1.03**	**1.03**	**1.00**	**1.03**	**1.00**	**0.91**					
SIZE_Asset	W	0.38	0.33	0.27	0.04	0.17	-0.03	0.21	0.25	0.08	-0.12	0.00	-0.24	0.33	-0.02	0.04	-0.11	0.07	0.05	0.04	0.02	0.02	-0.01	1			
		1.62	**1.50**	**1.36**	**1.05**	**1.21**	**0.97**	**1.27**	**1.33**	**1.08**	**0.89**	**1.00**	**0.81**	**1.50**	**0.98**	**1.05**	**0.90**	**1.08**	**1.05**	**1.04**	**1.02**	**1.02**	**0.99**				
SIZE_Revenue	X	0.28	0.24	0.18	0.03	0.19	-0.02	0.22	0.27	0.11	-0.13	0.08	-0.25	0.32	-0.01	0.05	-0.07	0.05	0.09	0.08	0.01	0.02	0.00	0.94	1		
		1.39	**1.31**	**1.22**	**1.03**	**1.23**	**0.98**	**1.28**	**1.37**	**1.13**	**0.89**	**1.08**	**0.80**	**1.48**	**0.99**	**1.05**	**0.93**	**1.06**	**1.10**	**1.09**	**1.01**	**1.02**	**1.00**	**17.14**			
CVA	Y	0.18	0.33	0.25	-0.03	0.09	0.01	0.00	0.07	0.03	-0.06	-0.03	-0.11	0.01	-0.03	-0.02	0.16	0.10	-0.02	0.01	0.01	0.01	-0.01	0.05	-0.01	1	
		1.22	**1.49**	**1.34**	**0.97**	**1.09**	**1.01**	**1.00**	**1.07**	**1.03**	**0.95**	**0.97**	**0.90**	**1.01**	**0.97**	**0.98**	**1.19**	**1.11**	**0.98**	**1.01**	**1.01**	**1.01**	**0.99**	**1.06**	**0.99**		
AGE	Z	0.04	0.05	0.06	0.08	0.14	0.02	0.09	0.16	-0.02	-0.05	0.11	-0.15	0.09	0.06	0.03	-0.04	-0.02	0.00	0.02	0.00	-0.06	0.05	0.36	0.37	0.00	1

APPENDIX 2 (B): Pearson Correlation matrix for MCs

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V	W	X	Y	
LTD_MV	A	1
LTD_BV	B	0.61	1
		2.58
TD_BV	C	0.54	0.86	1
		2.17	**7.38**
STD_BV	D	0.07	0.07	0.56	1
		1.08	**1.07**	**2.26**
DIVC	E	0.03	0.05	0.04	-0.03	1
		1.03	**1.05**	**1.04**	**0.97**
SR	F	0.03	0.00	-0.01	-0.02	0.35	1
		1.04	**1.00**	**0.99**	**0.98**	**1.55**
DIV(Share Rep)	G	0.03	0.11	0.03	-0.10	0.08	-0.09	1
		1.03	**1.12**	**1.03**	**0.91**	**1.09**	**0.91**
DIVCR	H	0.03	0.11	0.05	-0.09	0.75	0.19	0.71	1
		1.03	**1.12**	**1.05**	**0.92**	**4.07**	**1.23**	**3.51**
DIVER	I	-0.01	0.16	0.10	-0.06	0.11	0.04	0.21	0.21	1
		0.99	**1.19**	**1.11**	**0.94**	**1.12**	**1.04**	**1.27**	**1.27**
FX	J	-0.08	-0.06	-0.15	-0.14	0.01	0.08	0.05	0.05	0.14	1
		0.92	**0.94**	**0.87**	**0.88**	**1.01**	**1.08**	**1.06**	**1.05**	**1.17**
PR	K	-0.05	-0.01	-0.05	-0.08	0.09	0.11	-0.03	0.04	0.04	-0.06	1
		0.95	**0.99**	**0.95**	**0.93**	**1.10**	**1.12**	**0.97**	**1.04**	**1.04**	**0.95**
BPTCY	L	0.11	-0.01	0.04	0.10	-0.30	-0.02	-0.11	-0.28	-0.13	-0.01	-0.04	1
		1.12	**0.99**	**1.04**	**1.12**	**0.77**	**0.98**	**0.90**	**0.78**	**0.88**	**0.99**	**0.97**
BETA	M	0.06	0.16	0.05	-0.12	-0.01	-0.15	0.33	0.21	0.34	0.08	-0.06	-0.09	1
		1.07	**1.19**	**1.05**	**0.89**	**0.99**	**0.87**	**1.49**	**1.27**	**1.52**	**1.08**	**0.94**	**0.92**
CFV	N	-0.15	-0.12	-0.13	-0.06	-0.05	-0.09	0.03	-0.01	-0.01	-0.05	-0.03	-0.01	0.01	1
		0.87	**0.89**	**0.89**	**0.94**	**0.96**	**0.92**	**1.03**	**0.99**	**0.99**	**0.95**	**0.97**	**0.99**	**1.01**
ATR	O	0.02	0.02	0.01	0.00	0.08	0.00	0.04	0.08	0.02	0.00	-0.01	0.00	0.04	0.00	1
		1.02	**1.02**	**1.01**	**1.00**	**1.08**	**1.00**	**1.04**	**1.09**	**1.02**	**1.00**	**0.99**	**1.00**	**1.04**	**1.00**
NDTS	P	-0.03	0.01	-0.03	-0.04	-0.04	-0.01	-0.03	-0.05	-0.02	0.05	0.06	0.12	0.00	-0.01	-0.01	1
		0.97	**1.01**	**0.97**	**0.96**	**0.96**	**0.99**	**0.97**	**0.96**	**0.98**	**1.06**	**1.06**	**1.14**	**1.00**	**0.99**	**0.99**
TAX_CLTL	Q	0.06	0.05	0.03	-0.01	-0.02	-0.01	-0.01	-0.02	0.01	0.00	-0.02	0.00	-0.02	0.00	0.00	0.01	1
		1.06	**1.05**	**1.03**	**0.99**	**0.98**	**0.99**	**0.99**	**0.98**	**1.01**	**1.00**	**0.98**	**1.00**	**0.98**	**1.00**	**1.00**	**1.01**
PROF	R	-0.03	0.01	-0.02	-0.07	0.14	0.06	0.07	0.14	0.09	-0.01	-0.03	-0.31	0.06	0.02	0.00	-0.33	0.01	1
		0.97	**1.01**	**0.98**	**0.93**	**1.17**	**1.06**	**1.07**	**1.17**	**1.09**	**0.99**	**0.97**	**0.77**	**1.06**	**1.03**	**1.00**	**0.75**	**1.01**
AGC	S	0.06	0.08	-0.09	-0.24	0.09	0.05	0.10	0.13	0.35	0.18	0.10	-0.10	0.22	-0.05	0.01	0.02	-0.02	0.05	1
		1.07	**1.08**	**0.92**	**0.81**	**1.10**	**1.05**	**1.10**	**1.15**	**1.53**	**1.21**	**1.11**	**0.91**	**1.29**	**0.95**	**1.01**	**1.02**	**0.98**	**1.05**
FCF	T	-0.02	0.01	0.01	0.01	0.02	0.01	0.01	0.02	-0.02	0.01	0.00	0.05	-0.01	0.00	0.00	0.00	0.05	0.00	0.00	1
		0.98	**1.01**	**1.01**	**1.01**	**1.02**	**1.01**	**1.01**	**1.02**	**0.99**	**1.01**	**1.00**	**1.05**	**0.99**	**1.00**	**1.00**	**1.00**	**1.05**	**1.00**	**1.00**
GROW_PT	U	0.07	-0.02	-0.05	-0.05	0.03	0.04	0.01	0.03	0.03	0.04	0.01	-0.01	0.01	-0.13	0.00	0.00	0.00	0.01	0.05	0.00	1
		1.08	**0.98**	**0.95**	**0.95**	**1.04**	**1.04**	**1.01**	**1.03**	**1.04**	**1.04**	**1.01**	**0.99**	**1.01**	**0.88**	**1.00**	**1.00**	**1.00**	**1.01**	**1.06**	**1.00**
GROW_MV	V	-0.12	-0.06	-0.06	-0.02	-0.04	-0.13	0.01	-0.02	0.02	-0.08	-0.03	-0.02	0.04	0.86	0.00	-0.01	0.02	0.05	-0.03	0.00	-0.10	1

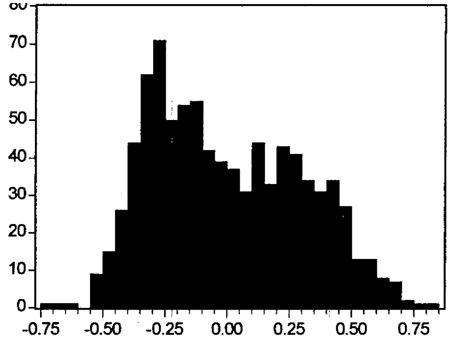
		0.89	**0.94**	**0.95**	**0.99**	**0.96**	**0.88**	**1.01**	**0.98**	**1.02**	**0.93**	**0.97**	**0.98**	**1.04**	**7.12**	**1.00**	**0.99**	**1.02**	**1.05**	**0.97**	**1.00**	**0.91**				
SIZE_Asset	**W**	0.39	0.31	0.33	0.12	0.06	-0.15	0.23	0.19	0.11	-0.16	-0.16	-0.08	0.37	-0.07	0.02	-0.08	0.02	0.13	-0.09	-0.01	0.06	-0.08	1		
		1.65	**1.45**	**1.48**	**1.14**	**1.07**	**0.87**	**1.29**	**1.24**	**1.13**	**0.86**	**0.86**	**0.92**	**1.58**	**0.94**	**1.02**	**0.93**	**1.02**	**1.15**	**0.92**	**0.99**	**1.06**	**0.92**			
SIZE_Revenue	**X**	0.35	0.27	0.30	0.15	0.08	-0.12	0.22	0.20	0.13	-0.16	-0.12	-0.11	0.35	-0.08	0.03	-0.07	0.01	0.16	-0.08	-0.01	0.06	-0.10	0.04	1	
		1.54	**1.38**	**1.43**	**1.18**	**1.09**	**0.89**	**1.28**	**1.26**	**1.15**	**0.86**	**0.90**	**0.90**	**1.54**	**0.92**	**1.03**	**0.94**	**1.01**	**1.19**	**0.92**	**0.99**	**1.06**	**0.91**	**1.04**		
CVA	**Y**	0.24	0.28	0.23	0.00	0.13	0.14	-0.03	0.08	-0.05	-0.10	-0.07	-0.13	-0.07	-0.06	-0.01	0.11	0.01	0.05	0.03	0.00	0.01	-0.05	0.12	0.07	1
		1.32	**1.40**	**1.30**	**1.00**	**1.15**	**1.16**	**0.98**	**1.08**	**0.95**	**0.91**	**0.93**	**0.89**	**0.94**	**0.95**	**0.99**	**1.12**	**1.01**	**1.05**	**1.03**	**1.00**	**1.01**	**0.95**	**1.13**	**1.08**	
AGE	**Z**	-0.04	0.09	0.22	0.20	0.13	0.01	0.10	0.16	0.09	-0.08	-0.01	-0.13	0.07	0.10	0.02	-0.05	-0.01	0.07	-0.06	0.00	-0.06	0.18	0.31	0.33	-0.01
		0.96	**1.10**	**1.28**	**1.25**	**1.15**	**1.01**	**1.11**	**1.19**	**1.10**	**0.92**	**0.99**	**0.88**	**1.08**	**1.12**	**1.02**	**0.95**	**0.99**	**1.07**	**0.94**	**1.00**	**0.94**	**1.22**	**1.44**	**1.49**	**0.99**

APPENDIX 3 (A): Normality Test for DCs



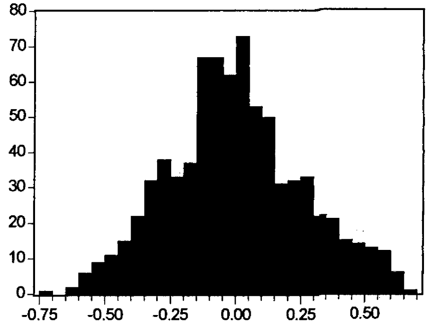
Series: Residuals
Sample 2155 21540 IF (COUNTRY_AUS=1)
*(MULT=0)
Observations 235

Mean	-3.52e-17
Median	-0.030503
Maximum	0.868637
Minimum	-0.382965
Std. Dev.	0.180614
Skewness	1.716167
Kurtosis	7.972951
Jarque-Bera	357.5050
Probability	0.000000



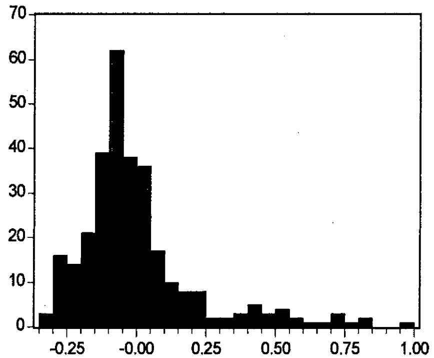
Series: Residuals
Sample 2155 21540 IF (COUNTRY_USA=1)
*(MULT=0)
Observations 870

Mean	-7.73e-17
Median	-0.047558
Maximum	0.814159
Minimum	-0.712468
Std. Dev.	0.301179
Skewness	0.316758
Kurtosis	2.132862
Jarque-Bera	41.80607
Probability	0.000000



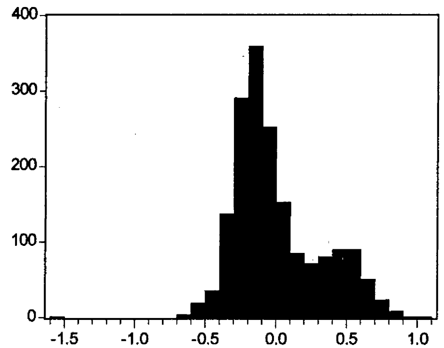
Series: Residuals
Sample 2155 21540 IF (COUNTRY_JPN=1)
*(MULT=0)
Observations 778

Mean	6.05e-17
Median	-0.011886
Maximum	0.683022
Minimum	-0.711023
Std. Dev.	0.259468
Skewness	0.164070
Kurtosis	2.770328
Jarque-Bera	5.200445
Probability	0.074257



Series: Residuals
Sample 2155 21540 IF (COUNTRY_GBR=1)
*(MULT=0)
Observations 302

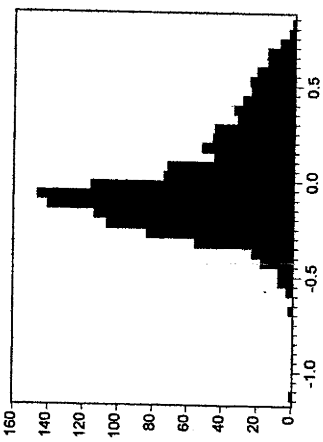
Mean	1.50e-16
Median	-0.054915
Maximum	0.959740
Minimum	-0.320340
Std. Dev.	0.216313
Skewness	1.782480
Kurtosis	6.742056
Jarque-Bera	336.1251
Probability	0.000000



Series: Residuals
Sample 2155 21540 IF (COUNTRY_MYS=1)
*(MULT=0)
Observations 1759

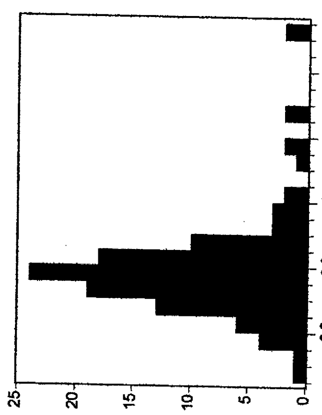
Mean	1.28e-16
Median	-0.089938
Maximum	1.027245
Minimum	-1.528869
Std. Dev.	0.306427
Skewness	0.723388
Kurtosis	3.130866
Jarque-Bera	154.6664
Probability	0.000000

APPENDIX 3 (B): Normality Test for MCs



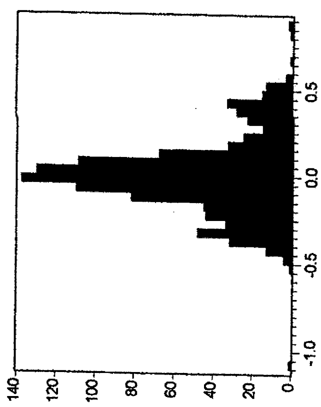
Series: Residuals
Sample 2155 21540 IF (COUNTRY_USA=1)
*(MULT=1)
Observations 1369

Mean	-1.13e-16
Median	-0.059157
Maximum	0.808610
Minimum	-1.108093
Std. Dev.	0.266900
Skewness	0.672508
Kurtosis	3.266317
Jarque-Bera	107.2380
Probability	0.000000



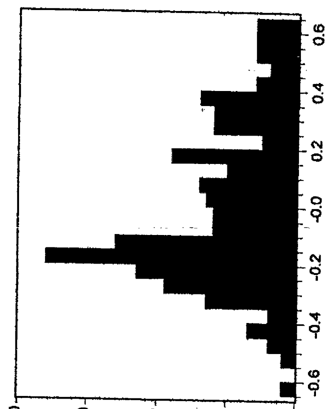
Series: Residuals
Sample 2155 21540 IF (COUNTRY_AUS=1)
*(MULT=1)
Observations 111

Mean	1.91e-17
Median	-0.026554
Maximum	0.730395
Minimum	-0.327640
Std. Dev.	0.166630
Skewness	1.935900
Kurtosis	8.756905
Jarque-Bera	222.6142
Probability	0.000000



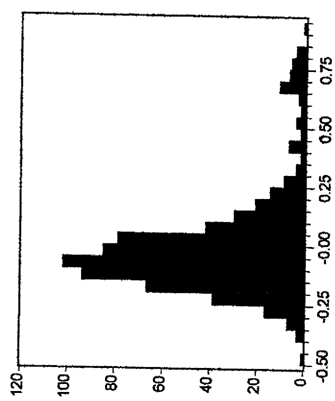
Series: Residuals
Sample 2155 21540 IF (COUNTRY_JPN=1)
*(MULT=1)
Observations 1051

Mean	2.00e-16
Median	-0.009615
Maximum	0.888137
Minimum	-1.092542
Std. Dev.	0.218879
Skewness	0.362393
Kurtosis	3.967122
Jarque-Bera	63.96384
Probability	0.000000



Series: Residuals
Sample 2155 21540 IF (COUNTRY_MYS=1)
*(MULT=1)
Observations 286

Mean	-1.81e-17
Median	-0.077417
Maximum	0.642702
Minimum	-0.645710
Std. Dev.	0.282436
Skewness	0.417548
Kurtosis	2.359486
Jarque-Bera	13.19942
Probability	0.001361



Series: Residuals
Sample 2155 21540 IF (COUNTRY_GBR=1)
*(MULT=1)
Observations 664

Mean	-1.46e-16
Median	-0.049533
Maximum	0.905076
Minimum	-0.456948
Std. Dev.	0.221509
Skewness	1.815771
Kurtosis	6.746529
Jarque-Bera	753.2131
Probability	0.000000

APPENDIX 4: Residual vs. Fitted Values (DCs followed by MCs)